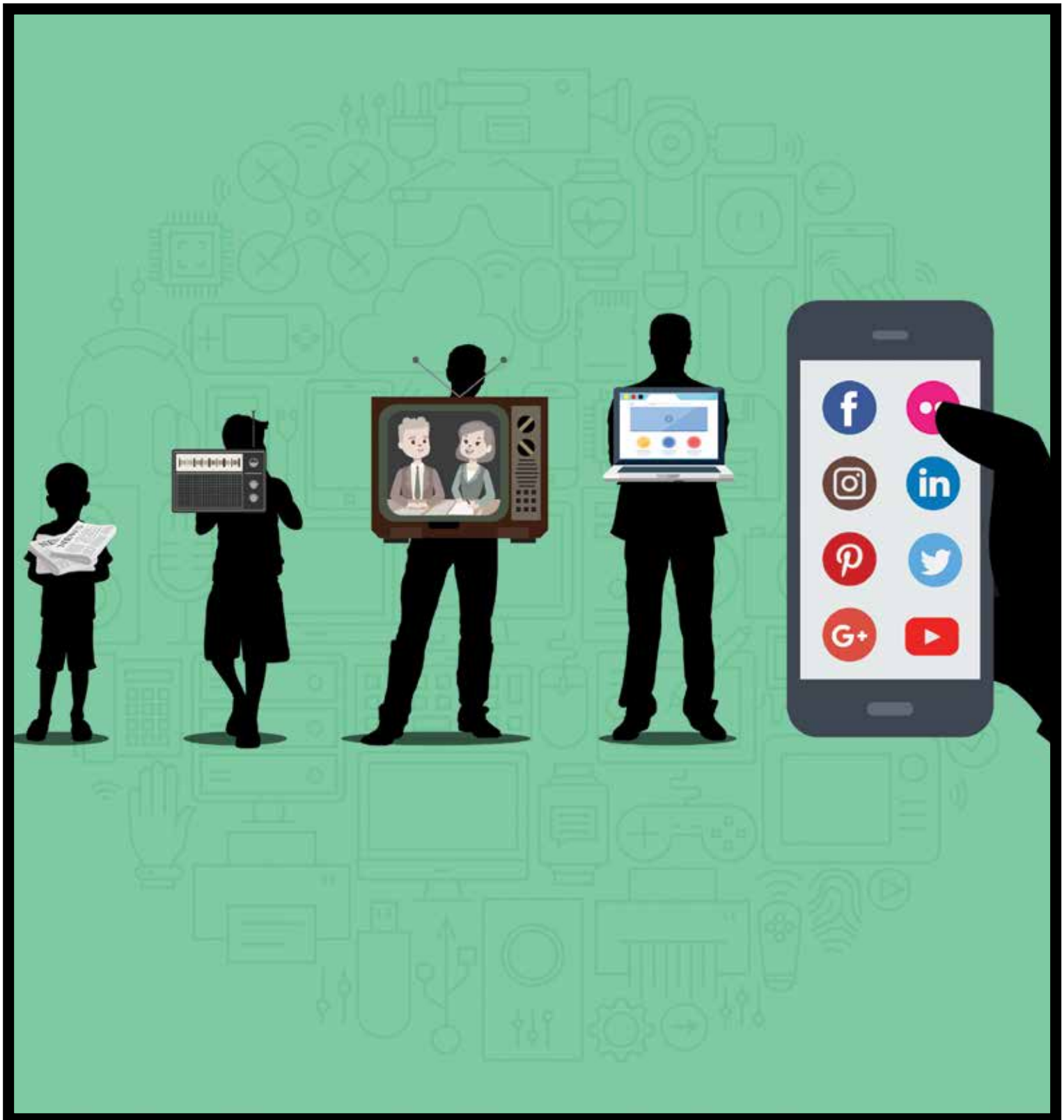


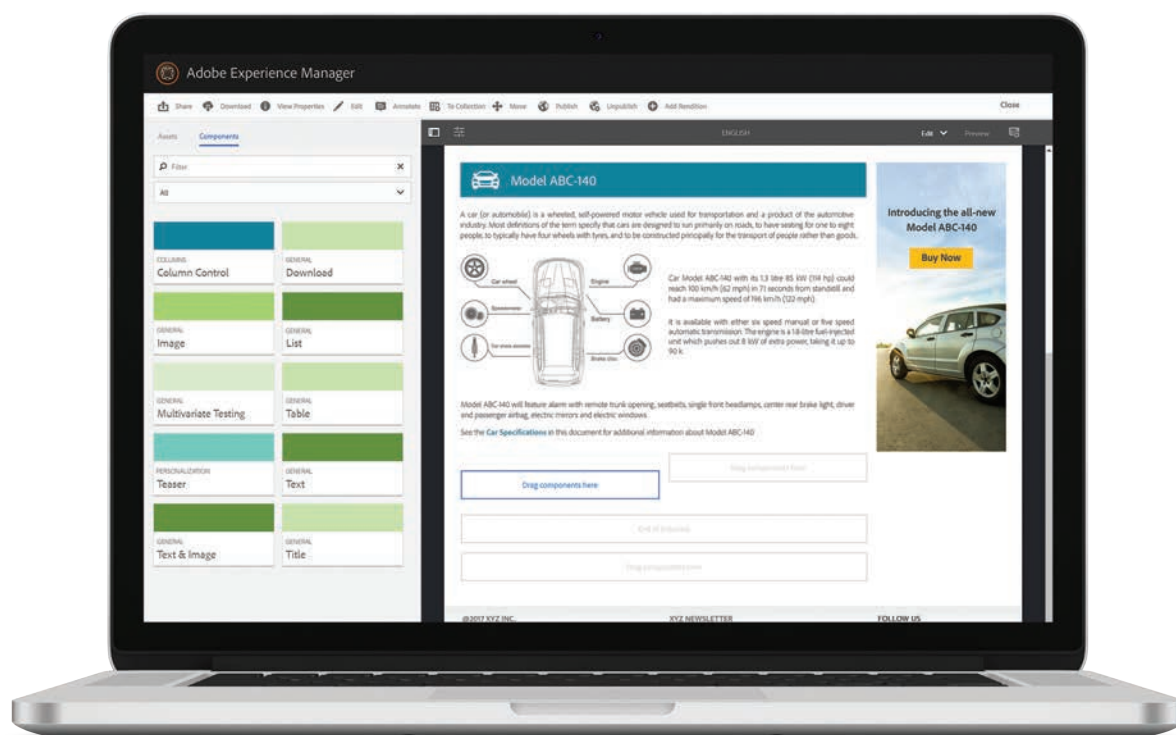
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What is a technical communicator? Technical communicators develop and design instructional and informational tools needed to ensure safe, appropriate, and effective use of science and technology, intellectual property, and manufactured products and services. Technical communicators combine multimedia knowledge and strong communication skills with technical expertise to provide education across the entire spectrum of users' abilities, technical experience, and visual and auditory capabilities. For more information visit www.stc.org/about-stc/defining-technical-communication.

The Society for Technical Communication is the largest association of technical communicators in the world. STC is currently classifying the Body of Knowledge for the field and communicating the value of technical communication. Its volunteer leadership continues to work with government bodies and standards organizations to increase awareness and accurate perception of technical communication. Membership is open to all with an interest in technical communication. Visit the STC Web site (www.stc.org) for details on membership categories, fees, and benefits.

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Technical COMMUNICATION

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There were 180 copies of TECHNICAL COMMUNICATION published in August 2017. The average for the preceding 12 months was 217. The paid/requested outside-county mail subscriptions for the August 2017 issue were 127; the average for the preceding 12 months was 152. Total distribution for August 2017 was 142. The average for the preceding 12 months was 170. 12 free copies of TECHNICAL COMMUNICATION were distributed by mail in August 2017 and the average number of free copies distributed during the preceding 12 months was 14. Thirty-eight copies of TECHNICAL COMMUNICATION were not distributed in August 2017, and the average number of copies not distributed during the preceding 12 months was 61. The percent paid/requested circulation in August 2017 was 91 percent; for the preceding 12 months, percent paid/requested circulation was 91 percent.

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About the Journal

Technical Communication is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

Technical Communication publishes articles in five categories:

- **Applied research** – reports of practically relevant (empirical or analytical) research
- **Applied theory** – original contributions to technical communication theory
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The purpose of *Technical Communication* is to inform, not impress. Write in a clear, informal style, avoiding jargon and acronyms. Use the first person and active voice. Avoid language that might be considered sexist, and write with the journal's international audience in mind.

Our authority on spelling and usage is *The American Heritage Dictionary*, 4th edition; on punctuation, format, and citation style, the *Publication Manual of the American Psychological Association*, 6th edition.

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Sam Dragga, Editor



Research Opportunities Seized and Missed

This issue of *Technical Communication* exemplifies the diversity of research that is typical of the journal and the field.

Meinold Thielsch and Manuel Wirth's "Web-Based Annual Reports at First Contact: Corporate Image and Aesthetics" investigates which salient characteristics of online annual reports—content, usability, or aesthetics—make the greatest impact on public impressions of corporations. Their experiment, involving 155 participants and the annual reports of seven businesses, finds that simple viewing of the annual report boosts corporate image, but the aesthetics or visual design of the report is key. This finding could challenge the relative weight given to information design versus usability in the teaching and practice of the field.

Susan Lang and Laura Palmer's "Reconceiving Technical Editing Competencies for the 21st Century: Reconciling Employer Needs with Curricular Mandates" studies textbooks and syllabi used for college courses in technical editing as well as job postings for technical editors. The key finding of their comparative analysis is that students are ill-prepared for the multimedia requirements of more and more positions in technical editing. Their recommendation is that academic programs in technical communication dedicate two courses to technical editing:

one that still emphasizes written language and one that focuses on audio, video, illustrations, and online distribution and access. This is a proposal with sweeping import for academic programs in technical communication.

Eva Brumberger and Claire Lauer's "International Faces of Technical Communication: An Analysis of Job Postings in Three Markets" analyzes job postings in the USA, India, and the United Kingdom and Ireland and finds that noteworthy differences exist in the job categories and industry sectors advertised as well as in the expectations of employers regarding levels of experience and education, skills with information products and technologies, communication competencies, and personal characteristics. This research thus has obvious practical and theoretical implications for intercultural collaborations.

"Promoting User Advocacy to Shift Technical Communication Identity and Value" by Sarah Martin, Nicholas Carrington, and Nancy Muncie chronicles how technical communicators in three different environments—military, academic, and corporate—introduced the methods of user-centered design and user experience (UCD/UX) in their jobs and thus established their positions as vital and visible contributors to the success of their respective organizations. Their stories offer

important lessons for every technical communicator on the job or in the classroom.

Mats Broberg's "Managing and Publishing Technical Data at FLIR: A Description of Two System Generations" details how a multinational corporation proceeded in the analysis, acquisition, and implementation of software solutions vital to its operations. The explication of this experience—from the options considered to the criteria for evaluation—contributes direct and candid insight on the decision-making processes of organizations.

Every article in every issue of the journal has the potential to inspire change. I am sometimes asked which topics or issues in the field are going unexamined and could be the focus of potential manuscripts for the journal: that is, which topics would I consider publishing on but never do because no manuscripts on this topic are submitted to the journal.

My answer has been consistent: technical communication in the gun industry.

Considering that guns are ripe with risk, I have been surprised that technical communication related to guns is never the subject of research in the field. I could easily imagine, for example, articles on the

usability of operating instructions, the clarity of hazard messages, the efficacy of training materials across multiple media, the impact of illustrations on safe practices for cleaning and storage, or the merits of plain language in explanations of operator rights and responsibilities.

The subject of guns certainly has extensive and tragic relevance: For example, the *Global Burden of Armed Violence 2015* (www.genevadeclaration.org/measurability/global-burden-of-armed-violence/) examines the period of 2007–2012 and compiles information from 175 nations and territories. It offers a conservative estimate of 174,000 people killed and 754,000 injured each year by guns worldwide—figures exclusive of wars.

In the United States, according to the Gun Violence Archive (www.gunviolencearchive.org), this year, 11,000 people have been killed and 23,000 injured with guns, with 1,500 verified unintentional shootings. Of the killed and injured, 525 were ages 0–11. And this violence has economic as well as emotional consequences: According to a Stanford University study of the years 2006–2014, gun-related injuries cost Americans \$730 million a year, with the public picking up 40% of that cost (Spitzer et al., *American Journal of Public Health*, pp. 770–774, May 2017).

Guns are also big business across the world, from Austria's Glock, Germany's Walther, and Italy's Beretta, to China's Norinco and Japan's Miroku, to Argentina's Bersa and Brazil's Taurus, to the USA's Colt, Magnum, Remington, Smith & Wesson, Springfield,

etc. In 2014, for example, the USA manufactured 9 million guns (excluding guns for the military but including guns for police), exporting 400,000, and importing 3 million from gun manufacturers in Europe, Asia, and South America (www.atf.gov/resource-center/docs/2016-firearms-commerce-united-states/download). Include material suppliers, ammunition, and the sales of gun-related equipment and clothing for hunting and shooting sports activities and the annual worldwide economic impact of the gun industry gives it prodigious influence. In the United States, that influence is especially pervasive because the gun industry, according to the National Shooting Sports Foundation, creates jobs and generates tax revenues in all 50 states (www.nssf.org/government-relations/impact/).

Given the intrinsic and widely realized risks associated with guns as well as the international scope and extraordinary resources of the industry, the scarcity of related research in the field of technical communication is altogether surprising. Do we think we have nothing to contribute from theory or practice to the conversation about guns? Do we believe that the rhetorical principles we espouse would offer no insight on how operating instructions or hazard messages could be devised in words and images? Do we imagine that usability testing of information materials would be ineffective?

Or could technical communicators at least aid in a reduction of unintentional killing and injury? Could we assist in

composing policies that assure private enjoyment and security as well as public and private safety?

After reading in the newspaper about a child who killed a sibling with a rifle received as a gift, I decided to investigate this tragic case. I visited Keystone Sporting Arms online: The site has been changed, but the pages I visited in 2015 are still available at web.archive.org/web/20150703151332/http://www.crickett.com/. Here was advertised the gun in question, the Crickett Rifle. According to testimonials on the site, it is bought for boys and girls as young as 4½ (web.archive.org/web/20150822093548/http://www.crickett.com:80/crickett_testimonials.php).

Also on the site, I noticed a prominent link to a “User Manual” (available as a pdf) and examined the manual critically as a typical technical communicator would. I noted immediately that it displayed a surprising confusion about its intended audience: While the manual specifically addressed the rifle owner (i.e., a child), it adopted wording and phrasing that would likely be unclear to a child (e.g., “Use only a non-acid resinous recognized quality gun oil, especially when cleaning the barrel bore. Other chemicals should not be used.”). And, yes, it included abrupt shifts from active to passive voice. Typographical errors were also distracting (e.g., “Please read this booklet carefully before operation your rifle.”). Especially distressing was that the manual included no illustrations. In addition, the “Operating and Cleaning Instructions” and

Sam Dragga, Editor

“Trouble Shooting” tips on pages 6 to 9 were duplicated on pages 10 to 13 of the 15-page manual.

I also noticed that aside from the brief warnings and cautions in this manual, the only remaining information about safe practices was supplied by a link to the extensive materials available through the National Shooting Sports Foundation (nssf.org).

I thought revising this manual would make a great service-learning project for a class I would be teaching. I emailed Keystone Sporting Arms, explained who I was, briefly identified the several deficiencies in its operating manual, and proposed that my students could revise the manual at no

cost. A representative inquired about examples of manuals that I might have written for the firearms industry. I acknowledged my inexperience but noted my record of teaching and publishing and supplied a résumé and copies of two of my articles published in *Technical Communication*. Following several weeks without word, I inquired again, only to find my offer declined without explanation. The defective manual remained available on the site. In Spring 2017, Keystone Sporting Arms launched a new site that includes no manual of instructions (www.keystonesportingarmsllc.com/).

I would guess that my inexperience at writing for the gun

industry might have caused the rejection of my offer. Or it could be anxiety about litigation if the corporation allowed that its manual was defective.

Regardless of the reason for this rejection, I do know we are missing critical opportunities to analyze and influence technical communication in a thriving industry as well as to serve the communities in which we live by making every citizen as conscientious and judicious about guns as clear instructions, lucid policies, and necessary cautions will allow.

My only remaining question: What equally important industries are we failing to examine and guide?

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Bette Frick

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On the Cover



When I read the words “changing nature” in the call description for cover illustrations for the November issue (“new media and the changing nature of technical communication”), I immediately thought of the word *evolution*. So I wanted to play off the “evolution” artwork without being too obvious. My graphic starts with a boy and shows his evolution through the years of life. The earlier stages represent more established media that evolve into the now, new media.

About the Artist

Ed Rempfer is the first two-time and consecutive winner of the journal’s cover competition (see also the August 2017 cover). He is a Multimedia Content Developer at SofterWare, Inc., where he creates websites, videos, animations, and graphics in the User Experience department. He has worked in the creative media industry since 2003—from a bustling advertising agency to a growing software company—and loves every minute of it. He also indulges in creative hobbies like singing, playing the piano, and playing video games. Ed is available at erempfer@softerware.com.

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Honorable Mention



Marshall McLuhan wrote about the extensions of humans—how new media evolved through our ability to think, to analyze, and to map the journey from the age of knowledge in the 90's to the age of digitalization in the early part of this century and then assimilate the two into this new age of the idea. With roots in “old media,” technological and societal determination together work to propel us into the next era of technological communication (McLuhan, *Understanding Media: Extensions of Man*, 1964).

We are truly vanguards in this new age, very much like the pioneers of the 18th and 19th centuries, and at the heart of this spirit is our innate ability to map our movements forward into this age of ideas and innovation. Even in the age of ideas with the advent of AI, humans will play a central force in this journey. None of this has been possible without our desire to improve and develop new communication media.

The illustration I chose was developed in Adobe Illustrator and InDesign. The head signifies the brain as the central force, and the mapped roadway illustration that is overlaid signifies the idea of mapping new technology and the implications it has in regard to the new technical communications that we develop. The color red symbolizes energy, while the blue symbolizes

hope in looking forward to the future. I believe this illustrates our innate spirit—our desire to map, to control, and to become fully engaged with the new technological extensions currently being researched and developed in our quest to integrate technological communication seamlessly into our lives.

About the Artist

Lisa Kozokowsky is a fourth-year undergraduate student at Mount Royal University, completing her Bachelor of Communications in the field of information design. Information design encompasses the creation of meaning out of complicated and unorganized data for the intended audience. Besides being a student, she has also developed an international reputation as an artist, with future goals of bridging left- and right-brain sensibilities to help solve complex problems in contemporary culture. She lives in Calgary, Alberta, with her husband and daughter. Lisa is available at kozokowsky@me.com.



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Web-Based Annual Reports at First Contact: Corporate Image and Aesthetics

Meinald T. Thielsch and Manuel Wirth,
Westfälische Wilhelms-University Münster

Abstract

Purpose: Enterprises aim for a favorable corporate image and use their corporate annual reports to impart it. The annual report is a formal document that fulfills the mandatory disclosure requirements and serves as an organization's mass communication medium to inform shareholders, investors, employees, customers, suppliers, and the press, as well as the general public. In particular, large enterprises provide an additional online version of their report. We investigated user engagement at first contact with such Web-based annual reports and the influence of main report characteristics—content, usability, and aesthetics—on corporate image and overall impressions.

Method: In a Web-based study, 155 participants read one of eight online corporate annual reports from German companies. Corporate image was assessed before and after browsing the report, overall impression afterwards. The report characteristics content, usability, and aesthetics were measured with established and validated questionnaires.

Results: Findings were in line with our hypotheses: Corporate image significantly improved from before to after reading a Web-based annual report, even as reading time was short, demonstrating a mere exposure effect. The report characteristics content, usability, and aesthetics explained 20.5% of the variation in this increase and 66.0% of the overall impression of the reports; the best predictor was visual aesthetics.

Conclusion: Content features of corporate reports are often limited by legal requirements, and usability of online reports is mainly driven by users' demands. However, organizations can positively influence their public perception by improving the visual design of their annual reports online.

Keywords: annual reports online, corporate image, content, usability, aesthetics

Practitioner's Takeaway:

- A mere exposure effect was found positively influencing evaluations of corporate image; visual aesthetics of Web-based annual reports could partly explain this effect.
- Perceptions of the three main report design characteristics content, usability and aesthetics constitute the overall impression of an online annual business report; aesthetics has the strongest impact.
- Design aesthetics is a report characteristic that can be shaped relatively easily and potentially has strong effects in attracting attention. Reports should display a pleasantly varied, dynamic, and creative layout that uses an attractive color scheme.
- We recommend testing user perceptions of Web-based annual reports in terms of content, usability, and aesthetics, using validated measures such as AIMQ, SUS, VisAWI, or Web-CLIC.

Introduction and Literature Review

A favorable corporate image is seen as one of an enterprise's most valuable assets due to its benefits relating to various target groups, such as customers and employees. Thus, enterprises are highly interested in a positive public perception of themselves. One place where enterprises communicate in a comprehensive way to a broad audience and impart their corporate image is the annual report. In it, enterprises publish their financial year. In addition to the print version of the report, large enterprises publish an online version, often as a stand-alone website. Consequently, the effects of readers' engagement with online corporate annual reports on corporate image and relevant report characteristics such as content, usability, and aesthetics are of great interest. The present study investigates these aspects with respect to corporate reports on the Internet.

Corporate image

The significance of corporate image has been widely noted, and corporate image is seen as one of a corporation's most critical and strategic intangible assets (Bernstein, 1986; Brown et al., 2006; Rhee & Valdez, 2009). A positive image can provide both differentiation and competitive advantage (Dowling, 1993; Gray & Balmer, 1998), which guarantees better long-run returns for better-perceived companies (Fombrun, 1996). Corporate image is one of the assets most appreciated by consumers (De Ruyter & Wetzels, 2000; Johnson & Wilson, 1993; Storey & Easingwood, 1998), and organizations with a good image are able to attract more and better job applicants (Collins & Han, 2004; Turban & Cable, 2003).

However, in research, a single common and coherent definition of corporate image is lacking (e.g., Chun, 2005; Walker, 2010). One point of confusion is the interchangeable use of related terms, such as corporate reputation (Barnett et al., 2006). In general, both image and reputation represent complex sets of organizational expressions and assessments (King & Whetten, 2008). Moreover, organizational image and reputation are closely related and interdependent (Markwick & Fill, 1997), perhaps even the same or at least part of the same construct (Gotsi & Wilson, 2001). A good reputation can lower firm costs (Deephouse, 2000; Fombrun, 1996); enable firms to

charge premium prices (Deephouse, 2000; Fombrun & Shanley, 1990; Fombrun, 1996; Rindova et al., 2005); attract job applicants (Fombrun, 1996; Turban & Greening, 1997), investors (Srivastava et al., 1997), and customers (Fombrun, 1996); increase profitability (Roberts & Dowling, 2002); create competitive barriers (Deephouse, 2000; Fombrun, 1996; Milgrom & Roberts, 1982); and increase the likelihood that shareholders will contract with a firm (Deephouse, 2000; Rhee & Haunschild, 2006).

In the present study, corporate image is defined as the summary of actual perceptions by externals toward an organization (see Bromley, 1993; Chun, 2005; Davies & Miles, 1998). Corporate image can be influenced by short-term cues and can change more quickly than reputation (Balmer & Greyser, 2003; Gray & Balmer, 1998).

Corporate annual reports

One place where organizations seek to impart corporate image is the annual business report (Bekey, 1990; Bonnell II, 1982; Neu et al., 1998). Essentially, the annual report is a formal document that fulfills the mandatory disclosure requirements to inform shareholders, investors, employees, customers, suppliers, and the press, as well as the general public, about a company's past, present, and future financial situation (see Piwinger, 2014). Its contents are the entire annual accounts, including an income statement, the management report, the supervisory board report, and resolutions for the appropriation of earnings. Annual reports of large companies (as focused in the present study) have to fulfill several national and international legal requirements; the 'International Financial Reporting Standards' (see <http://www.ifrs.org>) can be used as an orientation. For example, in Germany, information such as annual accounts that include profits and losses, a management report, a report of the supervisory board, a proposal on the appropriation of profits, and an audit certificate are mandatory; marked-listed companies have to publish an additional English version of their annual reports (Piwinger, 2014).

However, it has been widely recognized that the report's purpose goes beyond fulfilling legal commitments. The annual report is the most comprehensive document available to the public and, thus, the main disclosure vehicle (Marston & Shrivess, 1991). Parker (1982) highlighted the annual report

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as an organization's mass communication medium. It is a key communication vehicle between a firm's management and stakeholders and a primary source of financial and operating information about the firm (Needles et al., 1999). Following Sikes (1986), executives use the report as a calling card, salesmen as a credential, and personnel departments as a recruiting tool. In the design and advertising literature, annual reports are referred to as highly sophisticated marketing tools (e.g., Subramanian et al., 1993; Anderson & Imperia, 1992), which communicate an organization's image (e.g., Bekey, 1990; Bonnell II, 1982).

Like all corporate communications, corporate annual reports perform marketing functions in enhancing the understanding of, association with, and attitude and predisposition toward a product, service, or corporation (Adcock et al., 1995). Consequently, the annual report should improve the perception of the company. However, specific empirical evidence of fulfilling this goal seems lacking (see Stanton & Stanton, 2002). Research suggests that mere exposure to information is central to an individual's perception of corporate image (Gatewood et al., 1993; Olson & Mathias Thjømøe, 2003). Thus, one would expect typical attitudinal effects, such as mere exposure effects (Zajonc, 1968), to be caused by engagement with an annual corporate report. The first aim of our study is to investigate such a mere exposure effect.

Characteristics of corporate annual reports online

Because there are no official regulatory requirements for the design format of a corporate annual report, there are huge differences among companies. All large enterprises create a print version of the corporate annual report; many enterprises also publish an online version. One approach is to solely provide the print version as a PDF document on a company's website. However, some enterprises put great effort into creating additional online corporate annual reports, which are separate and sophisticated websites including quantitative information, narratives, photographs, graphs, and sometimes external links, audio, and video elements. Responsive designs are used increasingly, and modern Web-based business reports can contain animations, interactive elements (such as comparisons of key performance indicators), and information graphics or personalized features. Thus, an online annual report can be implemented separately from the existing corporate

website as a multimedia website quite differently in its presentation from the classical printed annual report (or its PDF version). The objects of the present study were such Web-based annual reports by German enterprises. In 2013, a separate online corporate annual report was provided by 70.0% of DAX30 enterprises (DAX, 'Deutscher Aktienindex,' German stock index, a stock market index consisting of the 30 major German companies trading on the Frankfurt Stock Exchange).

As such online annual reports are implemented as stand-alone websites, core facets of the user Web experience become of interest. User perceptions of websites are mainly driven by three characteristics: Web content, usability, and aesthetics (e.g., Cober et al., 2003; Tarasewich et al., 2001; Thielsch et al., 2014).

Content is primary for websites and is defined by the International Organization for Standardization in ISO standard 9241-151 (ISO, 2006) as 'a set of content objects' on a Web user interface. A content object is an 'interactive or non-interactive object containing information represented by text, image, video, sound or other types of media' (ISO, 2006, p. 3). Subjective perceptions of Web content are essential in business settings (Huizingh, 2000; Palmer, 2002) and influence a broad variety of general user reactions, such as overall attitudes and satisfaction, perceived service quality, purchase intentions, website preference, commitment, loyalty, and the intention to revisit or recommend a website (for an overview, see Thielsch & Hirschfeld, under review). However, the content of online corporate annual reports is often determined by the specific context of an enterprise and legal specifications. Thus, enterprises are obliged to optimize the content of annual reports in relation to such requirements.

Usability of a website is often defined based on ISO 9241-11 as the 'extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use' (ISO, 1998, p. 2). Thus, usability is best optimized so that a user of an annual online report experiences no problems and the report meets the users' demands. Again, the subjective viewpoint of users is important: Although a Web-based corporate report may present itself as objectively usable (e.g., based on fast loading speed and good search function), it can still be experienced as unusable from a subjective user's point of view (e.g., caused by misunderstandings or missing functions; see Hornbæk, 2006).

Beyond usability, impressions of a website's aesthetics are of great interest because, among other outcomes, aesthetic evaluations influence satisfaction, preferences, trust, motivation, customer loyalty, impulse purchases, and intention to revisit a website (see Moshagen & Thielsch, 2010, p. 691). There is no common definition available; however, aesthetics is often described as an immediate pleasurable subjective experience (Leder et al., 2004; Moshagen & Thielsch, 2010; Reber et al., 2004). As there are no legal specifications, design aesthetics allows for more degrees of freedom in presentation formats of annual corporate reports. Additionally, aesthetic responses occur immediately at first sight, and thus, the visual aesthetics of a website is very quickly processed, often within a split second (e.g., Lindgaard et al., 2006; Thielsch & Hirschfeld, 2012; Tractinsky et al., 2006; Tuch et al., 2012).

In respect to the interplay of website content, usability, and aesthetics, Thielsch and colleagues (2014) found that aesthetics has the highest impact on first and overall impressions. Yet, all three constructs significantly influence the overall impressions of the website user; effect sizes for content were medium and those for usability low (Thielsch et al., 2014). Thus, the second aim of our study is to investigate those three Web-based report characteristics and especially the role aesthetics is playing in users' appraisal of annual corporate reports online.

Research approach and hypotheses

The mere exposure to information has a strong effect on an individual's perception of corporate image (Gatewood et al., 1993; Olson & Mathias Thjømøe, 2003). We aim to replicate this effect with respect to Web-based annual reports. Thus, our first hypothesis is that the exposure and engagement of a user with an online business report will increase his or her evaluation of the corporate image.

As there is currently no empirical study available on the issue, it is unclear how content, usability, and aesthetics perceptions affect users' evaluations of Web-based corporate reports. Yet, findings from general research on website perception suggest that especially aesthetics might positively influence users' appraisal of online annual reports at first contact. Thus, the second aim of the study is to analyze to what extent the proposed mere exposure effect is associated with report

characteristics such as content, usability, and aesthetics. Based on prior research demonstrating the importance of aesthetics for first impressions (e.g., Lindgaard et al., 2006; Thielsch & Hirschfeld, 2012; Tractinsky et al., 2006; Tuch et al., 2012) our second hypothesis is that aesthetics will have a significant impact in explaining the expected mere exposure effect.

Third, we relate the overall impression of a given report to the three report characteristics content, usability, and aesthetics to investigate their relevance to the general perception of an annual report. Following the results of Thielsch and colleagues (2014), we expect in our third hypothesis that all three constructs—content, usability, and aesthetics—will contribute to the overall impression of an online business report with aesthetics showing the highest impact.

Method

Sample

Participants were recruited via social media, email, or face-to-face contact. A total of 160 volunteers anonymously completed the study. Data from two participants were excluded from analyses due to missing consent for the use of their data; an additional two participants had to be excluded due to unrealistic data given about their demographics. With respect to the definition of corporate image, one participant was excluded due to being employed at the allocated stimulus enterprise. Thus, a total of 155 participants (55.5% female), with ages ranging from 21 to 82 years ($M = 33.0$; $SD = 12.63$), were included in the following analyses. The education level of 77.4% of the participants was Abitur (German university entrance qualification) or higher. Of the participants, 65.2% stated that they had never seen any annual report before. The others varied from 1 to 200 ($M = 15.64$; $SD = 32.15$) read annual reports before this study. However, this experience factor is not significantly correlated to the given dependent measures, and means of all measures were quite comparable (see Appendix Table A.1). Thus, all of the participants were jointly analyzed.

Materials

Eight online annual reports from German companies listed in the DAX30 served as stimulus materials and

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were selected based on interviews with an expert in corporate communication specialized in corporate annual reports. To reduce possible bias effects caused by testing stimuli from different lines of businesses, reports were selected with a focus on industrial production enterprises. Consequently, reports from DAX30 companies in the financial or insurance branches were not considered. The URLs of the selected online reports and the respective companies can be found in the appendix (Appendix Table A.2). In the reports, companies reported their business year 2013 or 2012/2013. The reports were presented as separate websites and were freely available on the Internet.

Measures

Several measures were applied in the present study; a full list of the questionnaires used is provided in the appendix, Tables A.3–A.6. The survey was performed in German.

Corporate image Corporate image was measured twice: before (t1) and after (t2) the participants read the online corporate annual report. The image questionnaire contained nine Likert-type items based on the criteria used in *Fortune* magazine's survey of the World's Most Admired Companies (<http://fortune.com/worlds-most-admired-companies/>; assessed 01 September 2014). A sample item is 'Effectiveness in doing business globally' (1 = 'bad', 7 = 'excellent'). This measure shows good internal consistency (see Table 1); examples of previous work using *Fortune* magazine's criteria can be found in Gatewood et al. (1993) and Allen et al. (2007).

Overall impression The overall impression of the reports was measured with a single item displaying a very common school mark from the German education system. The item was: 'Which overall grade you give this annual report?' anchored with 1 ('very good'), 2 ('good'), 3 ('satisfactory'), 4 ('adequate'), 5 ('poor'), and 6 ('unsatisfactory').

Online report characteristics The following website evaluation questionnaires were slightly adapted in wording to better fit annual online business reports. Terms such as 'website' within the items were replaced by 'report.' The participants were asked to indicate their level of agreement with each item on a 7-point Likert scale (1 = 'strongly disagree', 7 = 'strongly agree').

Perception of content We used the Web-CLIC questionnaire (Thielsch & Hirschfeld, under review).

This measure consists of twelve items on the four subscales 'clarity', 'likeability', 'informativeness', and 'credibility' representing a general factor 'subjective perception of content.' The authors provide evidence for high reliability and stability, as well as convergent, divergent, discriminative, concurrent, experimental, and predictive validity (see Thielsch & Hirschfeld, under review).

Perceived website usability The scale measuring perceived website usability (Flavián et al., 2006) was used in its German version (see Thielsch, 2008; Thielsch et al., 2015). This scale is a seven-item measure assessing perceived ease of use, ease of understanding, and speed of information retrieval. The adapted German scale showed high internal consistency and factorial validity (Thielsch, 2008).

Perception of aesthetics The visual aesthetics of websites inventory was used ('VisAWI', Moshagen & Thielsch, 2010). This questionnaire consists of 18 items on the four subscales 'simplicity', 'diversity', 'colorfulness', and 'craftsmanship' representing a general factor 'visual aesthetics.' The items measuring simplicity ask to evaluate how clearly and structured the layout of a website is perceived; diversity is directed to the inventiveness and dynamic of the layout; colorfulness comprises aspects of color choice, placement, and combination; and craftsmanship items refers to the topicality, sophistication, and perceived professionalism of the design. The authors provide evidence of high reliability and convergent, divergent, discriminative, concurrent, and experimental validity (see Moshagen & Thielsch, 2010).

Procedure

We used the software EFS Survey 10.2 (by QuestBack) to conduct the Web-based study. The participants were recruited via social media (using platforms such as Facebook), email, or face-to-face contact and did not receive any compensation for partaking. They were asked to support research and to participate in a study about annual reports of German companies. Using a link on their personal computers, participants were directed to the Web-based questionnaire. On the welcome page, they were informed about the involved researchers, anonymity, voluntariness, and duration of the present study. After providing demographical background information (e.g., age, gender, level of education) and answering a mood scale (which served

as a control variable and did not reveal any effects on measures), the participants were randomly referred to one of the eight online annual reports. Before the report was presented to the participant, corporate image of the particular company was assessed using *Fortune* magazine's criteria as described above (t1). Afterward, the company's online annual report was presented via a hyperlink in its current form as fully functional website. The participants were instructed to explore the report carefully to be able to answer questionnaires about it (the median browsing time was 2.33 min). Then the questionnaires assessing a report's content, usability, aesthetics, and overall impression were given in randomized order, as were the items within each questionnaire. After that, corporate image was assessed again (t2). Finally, the participants were thanked and given the option to comment on the study or to have their data excluded from analysis. Completing this study took approximately 15 minutes.

Results

Table 1 shows descriptive statistics and correlations among the study variables; with respect to content and aesthetics, the general factor was analyzed. For further analysis, one additional variable Δ corporate image was defined describing the absolute difference in the corporate image evaluation from the first to the second measure (Δ corporate image = corporate image_{t2} - corporate image_{t1}). Values of overall impression were reversed for the following calculations.

First, we analyzed the changes in corporate image from before reading the annual reports to after. Corporate image increased significantly from the first to the second measure ($t(154) = 7.16, p < .001$). The standardized effect size for the found increase in organizational image was $d = 0.47$, which is close to a medium effect. According to the guidelines proposed by Cohen (1988), the standardized mean differences of $d = 0.2, 0.5$, and 0.8 are considered small, medium, and large effects, respectively. Thus, we could confirm our first hypothesis that the exposure of a user with an online business report will increase evaluations of the corporate image.

Second, predictors of the found increase in corporate image ratings were examined. A hierarchical regression model was conducted with Δ corporate image as the dependent variable and the three report characteristics of content, usability, and aesthetics as independent variables. After the exclusion of three outliers, all the requirements (e.g., collinearity, independent and normally distributed errors, homogeneity of variance and linearity) were met to calculate a hierarchical regression model.

Therefore, a three-stage hierarchical multiple regression was conducted to determine whether content, usability, and aesthetics predicted the increases in corporate image. Content was the first variable entered, followed by usability and aesthetics, according to the subjective importance of those variables as shown in prior research (see Thielsch et al., 2014); the regression statistics can be found in Table 2.

Table 1. Descriptive statistics, internal consistencies (Cronbach's alpha) and correlations among variables

Variable	M	SD	α	1	2	3	4	5	6
1. Corporate image (t1)	4.56	.88	.86	-					
2. Corporate image (t2)	5.00	.96	.91	.67**	-				
3. Δ corporate image	0.44	.75	-	-.31**	.50**	-			
4. Content	4.43	1.00	.92	.45**	.70**	.38**	-		
5. Usability	4.72	1.41	.96	.28**	.48**	.29**	.64**	-	
6. Aesthetics	4.89	.96	.93	.38**	.65**	.40**	.72**	.59**	-
7. Overall impression	4.55	.82	-	.31**	.58**	.39**	.68**	.63**	.78**

Note. N = 155. Corporate image rated on a seven-point Likert scale ranging from 'bad' to 'excellent'; Content, usability, and aesthetics rated on a seven-point Likert scale ranging from 'totally disagree' to 'totally agree'; Overall impression rated as school mark from 1='very good' to 6='insufficient' (values were reversed in calculations).

** $p < .01$.

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Table 2. Summary of hierarchical regression analysis for variables predicting Δ corporate image

Variable	B	SE(B)	β	R^2	ΔR^2	ΔF	df
Step 1				.17	.17	30.70***	1, 153
Content	.27	.05	.41***				
Step 2				.17	.00	.30	1, 152
Content	.25	.06	.38**				
Usability	.03	.05	.05				
Step 3				.21	.03	6.25*	1, 151
Content	.14	.08	.22				
Usability	.00	.05	-.01				
Aesthetics	.19	.08	.27*				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

The hierarchical multiple regression revealed that at stage one, content contributed significantly to the regression model and accounted for 17.0% of the variation in Δ corporate image. Introducing usability explained no additional variance in Δ corporate image. However, the addition of aesthetics to the regression model significantly explained an additional 3.4% of the variation in Δ corporate image. When all three independent predictors were included in stage three in the regression model, neither content nor usability were significant; the only significant predictor of Δ corporate image was aesthetics ($\beta = .27$, $p < .05$, see Table 2). This is in line with our second hypothesis that aesthetics will have a significant impact in explaining the found mere exposure effect. Together, the three independent variables accounted for 20.5% of the variation in Δ corporate image.

A more in-depth analysis was conducted to determine the variation explained by each of the four facets of aesthetics measured with the VisAWI (i.e., simplicity, diversity, colorfulness, and craftsmanship; Moshagen & Thielsch, 2010). The regression model with Δ corporate image as the dependent variable and the four VisAWI subscales as independent variables revealed that subjectively experienced visual diversity was the best predictor ($\beta = .37$, $p < .01$, explaining 6.1% of the variance). Craftsmanship ($\beta = .11$, $p = .36$), colorfulness ($\beta = .06$, $p = .56$), and simplicity ($\beta = -.03$, $p = .81$) did not emerge as significant predictors. Together, the four independent variables accounted for 19.5% of the variation in Δ corporate image.

Finally, predictors of overall impression of an online annual report were examined. Again, a hierarchical regression model was conducted with overall impression as the dependent variable and the three report characteristics content, usability, and aesthetics as independent variables. No outlier occurred, and all the statistical requirements for calculating hierarchical regression (e.g., collinearity, independent and normally distributed errors, homogeneity of variance and linearity) were met. Again, a three-stage hierarchical multiple regression was conducted to determine to what extent content, usability, and aesthetics predicted overall impression. As above, content was the first variable entered, followed by usability and aesthetics; the regression statistics are shown in Table 3.

The hierarchical multiple regression revealed that at stage one, content contributed significantly to the regression model and accounted for 46.4% of the variation in overall impression. Introducing usability significantly explained an additional 6.3% of the variation in overall impression. Finally, the addition of aesthetics to the regression model significantly explained an additional 13.3% of the variation in overall impression. When all three independent predictors were included in stage three in the regression model, all were significant. The best predictor was aesthetics ($\beta = .54$, $p < .001$, see Table 3) and, together the three independent variables, accounted for 66.0% of the variation in overall impression. Those results confirm our third hypothesis.

Table 3. Summary of hierarchical regression analysis for variables predicting overall impression

Variable	B	SE(B)	β	R ²	ΔR^2	ΔF	df
Step 1				.46	.46	132.69***	1, 153
Content	.56	.05	.68***				
Step 2				.53	.06	20.24***	1, 152
Content	.39	.06	.47***				
Usability	.19	.04	.33***				
Step 3				.66	.13	58.91***	1, 151
Content	.13	.06	.15*				
Usability	.12	.04	.21**				
Aesthetics	.47	.06	.54***				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

First, this study demonstrated that users' engagement with Web-based annual reports can positively influence corporate image, confirming our first hypothesis. Even a relatively short amount of time spent at first contact with an online business report leads to attitude changes with mediocre effect size ($d = 0.47$). This finding is in line with the theory of Zajonc (1968) and prior research demonstrating that mere exposure to information is central to an individual's perception of corporate image (Gatewood et al., 1993; Olson & Mathias Thjømøe, 2003). The present results fit nicely with the claims that, beyond fulfilling legal commitments, enterprises should use the corporate annual report to impart corporate image (Bekey, 1990; Bonnell II, 1982; Neu et al., 1998) and to reach out to a broad audience with this medium (Marston & Shrivs, 1991; Needles et al., 1999; Parker, 1982).

Second, report characteristics predicting improvements in corporate image were investigated. The results revealed that report aesthetics was the best predictor of these improvements ($\beta = .27$); content ($\beta = .22$) and usability ($\beta = -.01$) were not significant predictors of the attitude changes in the current study. This finding is in line with our second hypothesis based on the empirically found high importance of aesthetics for users' attitudes and reactions (Moshagen & Thielsch, 2010), especially regarding first impressions (e.g., Lindgaard et al., 2006; Thielsch & Hirschfeld, 2012; Tractinsky et al., 2006; Tuch et al., 2012). In particular, the aesthetics facet of diversity was important

for improvement in image perception. Thus, users in the current study especially valued how interesting, inventive, dynamic, and pleasantly varied the design of an online business report was. However, one might argue that the design characteristics explained only approximately one-fifth of the variance in image chance. Still, given the high value of corporate image and the numerous consequences of its perception, even slight changes become highly important. Our findings on effects of aesthetics on corporate image corresponded well with comparable results in recruiting research (e.g., Cober et al., 2003; Uggerslev et al., 2012) or user experience and brand perceptions (e.g., De Angeli et al., 2009; Garzotto et al., 2010).

Third, report characteristics predicting the overall impressions of the reports were analyzed. In line with the findings on improvements in corporate image, report aesthetics was the best predictor of overall impressions ($\beta = .54$). This finding, again, confirms the empirically found high importance of aesthetics for users' attitudes and overall appraisal (Moshagen & Thielsch, 2010; Thielsch et al., 2014). In contrast to the findings on the attitude change, both content ($\beta = .15$) and usability ($\beta = .21$) showed significant effects on the overall perception of online reports in a regression analysis—which is in line with prior research findings on overall website impression (Thielsch et al., 2014) and our third hypothesis.

Nevertheless, some readers of these results may be wondering why aesthetics has the strongest impact at first contact with a Web-based annual report and not content—especially in light of high variance

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explained by content if it is the only variable in the regression analysis. Yet, it is important to keep in mind that content, usability, and aesthetics evaluations are correlated (see Table 1). Aesthetics is especially known to potentially produce halo-effects and to influence the perception of other constructs (e.g., Lindgaard et al., 2006; Thielsch et al., 2015), possibly due to its early onset in visual processing (see Thielsch & Hirschfeld, 2012). Analyzing only content would not incorporate such effects leading to a possible overestimation of the importance of content.

Practical implications

This study demonstrates a positive attitude change with respect to corporate image after readers spent a relatively short amount of time with an online report. This finding illustrates that even well-known brands, such as those tested in the present study, can profit from readers' engagement with their annual reports on the Internet. Thus, companies and organizations should put effort into reaching out to potential readers. However, contents of Web-based annual reports are often determined by context and legal specifications, and usability must generally be maximized for an optimal user experience. In contrast, aesthetics is a report characteristic that can be shaped relatively easily and, potentially, has strong effects in attracting attention. Thus, from an organizational viewpoint, the design aesthetics of an online business report especially creates various possibilities and can serve as a unique selling point in competition with other companies. Enterprises can positively influence their public perception by improving visual design features of their online reports and, thus, ensure their reports are aesthetic. In particular, designers of online annual reports might focus on a pleasantly varied, dynamic, and creative layout that uses an attractive color scheme in a sophisticated manner. Information graphics should be designed in an informative and aesthetic way, while interactive elements must be intuitive to use. Furthermore, modern Web-based reports are combined with compelling multimedia elements.

Newly created, prototype, or even first draft versions of Web-based annual reports can benefit from a structured analysis of users' perceptions and preferences—especially, as for many companies a Web-based annual report is still kind of an uncharted territory and user requirements are vague.

Content perception could be assessed by applying an information quality measure such as the AIMQ (Lee et al., 2002) or a Web content questionnaire such as the Web-CLIC (Thielsch & Hirschfeld, under review). Usability can be tested by adapting a classical usability questionnaire: For example, the System Usability Scale (SUS; Brooke, 1996) or, more specific to the Web, the usability scale of Flavián et al. (2006) used in the present study. For assessing aesthetics, the VisAWI (Moshagen & Thielsch, 2010) seems to be a sound instrument; the present study implies that the facet diversity might be particularly interesting to investigate. Alternatively, if there is little time for testing and only the general aesthetic impression is of interest, a more economical short-version, the VisAWI-S, is available (see Moshagen & Thielsch, 2013).

Limitations and future research

This study has some limitations that should be kept in mind while interpreting the results. In addition, these limitations suggest directions for future research.

First, in respect to the found mere exposure effect, the statistical model could explain 20.5% of the variation in improvements in corporate image. This finding suggests that further variables—probably in addition to online reports' design characteristics—influence user evaluations. Potentially, besides the report itself, the simple engagement with the enterprise is a critical factor in improving the receptors' evaluation of the enterprise. Future research should identify remaining predictors and further examine interaction characteristics explaining the found variation.

Second, the effect on corporate image was analyzed by using the existing online versions of corporate annual reports. Future research should investigate to what extent the found effects can be transferred to different media, especially print, which is the most common format of corporate annual reports. Furthermore, future studies on Web-based business reports can benefit from experimentally varying relevant report characteristics as identified in the present study.

Third, we targeted our study to a broad audience of potential readers of annual reports. Some participants were highly experienced with such reports while others were novices. Yet, we found no significant correlation between this experience factor and our main variables.

Only one small significant difference for the usability ratings occurred at the mean level; this might be caused by a higher expertise of experienced readers in using annual reports. Nevertheless, a more detailed comparison between experts and laypeople or different target groups of annual reports might be promising for future research.

Fourth, the free exploration task used in our study led, sometimes, to a quite short amount of time participants spent with an annual report. Other tasks (e.g., search or memory tasks) might work better in provoking a deep examination of a given report. Some research in Human Computer-Interaction would suggest a vanishing importance of aesthetics over time (e.g., Sonderegger et al., 2012) and the importance of content and usability might grow in a continued use scenario. Yet, this is a question for future research on Web-based annual reports.

Fifth, we used a single item (an overall grade) as a general, holistic marker of business report quality. In further research, this way of measuring participants' overall impression of annual reports could be validated with additional measures and especially behavioral markers (e.g., using paired comparison tasks or ranking data; see Hirschfeld & Thielsch, 2015).

Sixth, all of the tested participants and presented online reports shared the same cultural background. Possible differences in design perceptions driven by culture are discussed in several studies (e.g., Cyr et al., 2010; Marcus & Gould, 2000; Robbins & Stylianou, 2003). Consequently, the extent to which found results are prone to cultural differences should be analyzed by a cross-cultural approach. This could be done by re-running the present study in different cultural contexts (e.g., Cyr et al., 2010; Tractinsky, 1997).

In summary, the present study found positive effects of users' engagement with online annual reports on corporate image, i.e., a mere exposure effect. In terms of report characteristics, this effect was mainly driven by perceptions of aesthetic design features, which was also the most important predictor of the overall impression of a Web-based report at first contact. However, content and usability evaluations accounted for substantial variance in the overall appraisal of an online report. These findings open promising perspectives in future research on companies' communication via annual reports on the World Wide Web.

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Appendix

Table A.1 Differences between participants with and without prior experience with annual corporate reports

	Corporate image (t1)		Corporate image (t2)		Content		Usability		Aesthetics		Overall impression	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
No experience (n = 101)	4.59	0.81	4.96	0.94	4.32	0.99	4.56	1.43	4.89	0.94	4.55	0.85
Experience (n = 54)	4.52	1.00	5.06	1.01	4.64	1.00	5.03	1.33	4.90	1.01	4.56	0.77
Significance of difference	$F_{(1, 153)} = 0.23$, $p = .63$, $d = 0.08$		$F_{(1, 153)} = 0.40$, $p = .53$, $d = -0.10$		$F_{(1, 153)} = 3.58$, $p = .06$, $d = -0.32$		$F_{(1, 153)} = 3.93$, $p = .05$, $d = -0.34$		$F_{(1, 153)} < 0.01$, $p = .96$, $d = -0.01$		$F_{(1, 153)} < 0.01$, $p = .99$, $d = 0.00$	

Note: Standardized mean difference effect sizes were calculated using Cohen's d ; according to the guidelines provided by Cohen (1988), d values of 0.2, 0.5, and 0.8 are considered small, medium, and large effects, respectively

Table A.2 List of online annual report stimuli (Name of company and URL of report; assessed September 1, 2014)

Company	URL
BASF AG	http://bericht.basf.com/2013/de/serviceseiten/willkommen.html
Bayer AG	http://www.geschaeftsbericht2013.bayer.de/
Continental AG	http://report.conti-online.com/index_de.html
Deutsche Telekom AG	http://www.geschaeftsbericht.telekom.com/site0413/de/start.php
SAP AG	http://www.sapintegratedreport.com/2013/de/
Siemens AG	http://www.siemens.com/annual/13/de/index/
ThyssenKrupp AG	http://www.thyssenkrupp.com/financial-reports/12_13/de/
Volkswagen AG	http://geschaeftsbericht2013.volkswagenag.com/serviceseiten/willkommen.html

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Table A.3 List of items measuring corporate image (based on Fortune's World's Most Admired Companies criteria (<http://fortune.com/worlds-most-admired-companies/>; assessed September 1, 2014))

1. Ability to attract and retain talented people
2. Quality of management
3. Social responsibility to the community and the environment
4. Innovativeness
5. Quality of products or services
6. Wise use of corporate assets
7. Financial soundness
8. Long-term investment value
9. Effectiveness in doing business globally

Note: Rated on a seven-point Likert scale ranging from 'bad' to 'excellent'; in the present study, $\alpha = .86$ (t1) and $.91$ (t2)

Table A.4 List of items measuring online annual report content on the four scales (based on the Web-CLIC, see Thielsch & Hirschfeld, under review)

Scale: Clarity ($\alpha = .73$)

1. I find the contents of the report to be clearly presented.
2. The texts provide me information in a clear and concise manner.
3. I find the language used in the texts to be current and easy to understand.

Scale: Likeability ($\alpha = .89$)

4. The report piques my interest.
5. The contents of the report are exciting.
6. I enjoy reading the report.

Scale: Informativeness ($\alpha = .80$)

7. The information is of great value.
8. I find the information in the report to be useful.
9. The report is informative.

Scale: Credibility ($\alpha = .89$)

10. I find the information provided in the report to be authentic.
11. The information provided in the report is reliable.
12. I can trust the information in the report.

Note: Rated on a seven-point Likert scale ranging from 'totally disagree' to 'totally agree'; α in the present study is directly indicated at the scales

Table A.5 List of items measuring online annual report usability (based on a scale adapted from Flavian et al., 2006; for details, see Thielsch et al., 2015)

1. I think this report is easy to understand.
2. This report is simple to use, even when using it for the first time.
3. It is easy for me to find the information I seek.
4. I can easily understand the structure of this report.
5. It is easy to navigate within this report.
6. Contents are organized in a way that I know where I am at any time.
7. I am able to find the information I need quickly.

Note: Rated on a seven-point Likert scale ranging from 'totally disagree' to 'totally agree'; in the present study $\alpha = .96$

Table A.6 List of items measuring online annual report aesthetics on the four scales (based on the VisAWI, see Moshaugen & Thielsch, 2010)

Scale: Simplicity ($\alpha = .79$)

1. The layout appears too dense. (r)
2. The layout is easy to grasp.
3. The layout appears well structured.
4. The report appears patchy. (r)
5. Everything goes together in this report.

Scale: Diversity ($\alpha = .87$)

6. The design is uninteresting. (r)
7. The layout is inventive.
8. The design appears uninspired. (r)
9. The layout appears dynamic.
10. The layout is pleasantly varied.

Scale: Colorfulness ($\alpha = .87$)

11. The color composition is attractive.
12. The colors do not match. (r)
13. The choice of color is botched. (r)
14. The colors are appealing.

Scale: Craftsmanship ($\alpha = .81$)

15. The layout appears professionally designed.
16. The layout is not up-to-date. (r)
17. The report is designed with care.
18. The design of the report lacks a concept. (r)

Note: Rated on a seven-point Likert scale ranging from 'totally disagree' to 'totally agree'; negatively-keyed items are indicated by (r) and are reverse-scored; α in the present study is directly indicated at the scales

Reconceiving Technical Editing Competencies for the 21st Century: Reconciling Employer Needs with Curricular Mandates

Susan Lang, Ohio State University and Laura Palmer, Kennesaw State University

Abstract

Purpose: Current technical editing courses aren't meeting the needs of industry. This manuscript provides readers with a survey of recent editing-related job requirements, gives a brief assessment of popular technical editing textbooks, and describes two iterations of an editing course redesign in which the authors gave students a broader exposure to editing than text and markup.

Method: The authors examined the job postings in conjunction with course descriptions, popular technical editing textbooks, and other media to gauge how well undergraduate classes were helping students gain necessary competencies for entering the workforce. Following, the authors redeveloped the curriculum for a 4000-level technical editing class. The curriculum reduced the focus on text editing and markup; instead, it framed the diversity of the profession to students through working with editing manuals/standards, MS Word and Adobe Acrobat, and audio, video, and websites. At semester's end, students were asked to provide feedback on course and content.

Results: The revisions to the course disrupted student notions of pencils, paper, and grammar as the backbone of editing. Students were surprised by the new media focus but found it to be very useful. Most had little idea about the breadth of technical editing and enjoyed the exposure to multimodal editing. Most students, however, wanted more work with language basics.

Conclusion: Editing jobs are morphing and students need practice in new media environments. Students are able to consider editing competencies as extending beyond text and traditional markup. Yet, most still feel uncomfortable with their own expertise in those areas. Programs should develop more than one editing class: a basic class for language, tools, and technologies, and an advanced class focusing on specific editing topics, such as video, audio, images, and Web.

Keywords: technical editing, editing curricula, multimodal editing, new media editing competencies

Practitioners' Takeaway:

Practitioners should:

- Actively seek opportunities to join advisory boards with the goal of helping academics shape editing courses that meet real-world needs.
- Create internship opportunities for students to contribute their expanded editing skill set in your company.
- Speak to students in technical editing classes (face-to-face or online) about technical editing in your organization.
- Review current job postings across multiple websites in order to modernize and better specify requirements for editing positions within your organization.

Reconceiving Technical Editing for the 21st Century

Introduction

While the graduate curriculum in technical communication focuses on such topics as intercultural communication and the like, a staple of the undergraduate curriculum, technical editing, receives far less attention in academic programs. In this text, we argue that in academic programs, the pedagogy of technical editing is in critical need of a reevaluation, and that perhaps by reexamining the technical editing course, curricular committees can reconsider how well their program offerings are meeting the needs of their undergraduate students. We contend that technical editing receives relatively little attention in the academic world of technical communication, and, as such, the course has remained relatively static—and perhaps has even moved more toward a “classical editing” course. Yet the skills employers now expect of grads go far beyond classical editing. They expect some competencies in editing video, audio, Web—in short, content defined broadly, as discussed in the following pages; yet many programs still send students out with only classical editing skills, doing a disservice to both the student and employer. What to do? Our response was to examine job descriptions, articles, and textbooks, then revise a traditional technical editing course from one focusing primarily on text and markup to one that introduces students to editing demands of Web, audio, and video. This article focuses on what we learned about current technical editing needs in the workplace, how they informed the revision of our technical editing course, and the results of that revision.

The definition of “technical editing” is one that looms large for us as it seems many technical editing classes have morphed into classical editing—a review of grammar and language use for the printed page. Per Rude and Eaton’s (2011) description, technical editors work on documents with technical subjects; such editors may require specialized disciplinary knowledge in addition to language expertise. The other part of the technical equation for Rude and Eaton informs the ways in which an editor works with the subject matter “to analyze, explain, interpret, inform, or instruct” (p. 11). In sum, the authors situate the art and skill of editing as requiring knowledge in “both language and the methods by which we make sense of information” (p.11). For us, this frames editing as almost entirely a

textually based process. To confirm our assumptions, we explored the field of technical editing in more depth. We began by examining job postings; reviewing the literature in technical editing, including articles and textbooks; and analyzing course descriptions from a variety of universities.

Current job postings

Our early research began with a scan of the job descriptions for editing positions. The descriptions made it very clear that editing, as conceptualized and taught in academia, is undergoing change. Positions today involve more than our textbooks and syllabi have ever envisioned. While it’s true that the basic tasks of any editor—researching, writing, and editing—are still part of many jobs, it’s not uncommon to see positions that ask for the aforementioned in addition to publishing articles, multimedia products, and other materials across a variety of platforms and channels. A quick canvas of such websites as Monster.com and Indeed.com revealed the following descriptions:

- A university seeking an editor who uses the Web, audio, video, images, and other electronic media to support written material in telling campus stories and delivering strategic messages.
- A satellite radio provider seeking an editor who can work with audio.
- A major cable provider seeking an editor who can work with the Web, audio, video, images, and other electronic media.
- A major governmental organization seeking an editor who can conceptualize, edit and publish blogs, stories, videos, photos, infographics, and audiovisual content.

This informal look at technical editing job descriptions gave us pause. As our brief review of technical editing course descriptions reveals, few of these competencies are present in our technical and professional editing classes. This is a serious weakness in terms of the future of editing, especially in light of emerging and morphing new media literacies. Five years ago, the 2011 report “Future Work Skills 2020,” examined the key drivers that would reshape the landscape of work and identified key work competencies required (p. 1). In its forecasts, Future Work Skills 2020 identified six predicted drivers of change for the workplace. In their list was New Media

Ecology, defined as a new communication era with communication tools that will require literacies beyond text. The report states that:

New multimedia technologies are bringing about a transformation in the way we communicate. As technologies for video production, digital animation, augmented reality, gaming, and media editing, become ever more sophisticated and widespread, a new ecosystem will take shape around these areas. We are literally developing a new vernacular, a new language, for communication. (p. 4)

We saw that editing had a far broader purview than imagined, requiring not only competencies in multimodality but with various technologies related to the Web or to content management systems (CMS). We also noted that what we in academia call “multimodality” is called “content” in the professional world. In the postings, we often saw phrases related to “content design” or “content development.” While many academics may think of the word “content” only in relation to text, for practitioners, content refers to text, photos, multimedia, illustrations, video, and more. Content is therefore a broad term and, as such, has significant implications for how we think about the structure and design of a technical editing class.

A sample of jobs re-tweeted by the @stc_te_sig demonstrates the breadth of what editing positions may encompass:

STC Tech. Edit. SIG¹@stc_te_sig May 19

Documentation Engineer - Facebook - Menlo Park, CA <http://dlvr.it/LLfsqc> #job #techcomm

As one of our fantastic technical content editors, you will be part of the team responsible for quality, discoverability and accuracy of the content on developers.facebook.com. Your primary responsibility will be to make the content on the site as amazing as possible. This means sometimes you're documenting something yourself, sometimes you're editing someone else's contributed content, and other times you're fixing existing documentation in the site. Basically you will need to be a jack of all trades - writing, structuring content, coding, some light project management, and lots of communication.

STC Tech. Edit. SIG¹@stc_te_sig May 21

Web Editor, Consumers, Google Technical Services - Google - Mountain View, CA <http://dlvr.it/LMXz12> #job #techcomm

In this highly cross-functional role, you'll help writers develop clear, user-friendly online content for millions of people who use Google's consumer products every day.

Responsibilities

- Help set and shape guidelines for online help content and user education.
- Edit articles, scripts, and other educational materials.
- Develop content strategy for multiple Google help centers. Set quality standards and measure content quality.
- Work with content at many levels (Information architecture, style guides, templates, analytics).
- Advocate online writing best practices.

STC Tech. Edit. SIG¹@stc_te_sig May 25

Senior Technical Writer/Editor - Information Innovators Inc. - United States <http://dlvr.it/LPSLMf> #job #techcomm

The Web Editor's primary responsibilities include developing and maintaining existing HTML template libraries and Adobe flash activities, preparation and/or editing of graphics and imagery, deciphering content and design from storyboards or other assets, HTML4/5, CSS, JavaScript, and other scripting-based tagging and coding, proofreading, and loading product content into the proper online content repositories within the company workflow and quality standards.

- Create online web content per design of storyboards/documentation and in compliance with company standards and quality expectations.
- Create multimedia assets per design and standards of storyboards. Graphic preparation and/or editing. Conversion and/or integration of audio/video into web friendly formats such as flash or HTML5.

Reconceiving Technical Editing for the 21st Century

Editing, it would seem, was changing dramatically in response to the emergence of delivering information in workplaces that had become multiplatform rich.

Articles and Other Media

We then turned to articles and other media to see if technical editing was covered more thoroughly with respect to what editors may be doing today. Some articles discuss expanded roles for editors, such as the 1998 piece by Williams and Harkus, “Editing Visual Media.” While extremely helpful in the era in which it was published, the Williams and Harkus piece focuses on static media. It appears a decade out from the time when multimodality is prevalent. In 2001, Don Bush, writing in the *Intercom* column “The Friendly Editor,” noted the changes in the field in “Editing is Magic.” Bush noted that technology is changing the face of technical editing and that many emerging jobs would require competencies with HTML, XML, or even usability testing. Bush aptly predicted that, as technology grows, editors will create their own positions.

Comments from a 2015 thread on the Association of Teachers of Technical Writing (ATTW) was enlightening as to how editing was being taught in academia. One of the queries on the thread asked if it would be “more important for a student to be able to identify problems in a manuscript than to mark a paper with a particular squiggle or slash.”

A reply to the post questioned this traditional editing practice and asked, “Do we really need to teach students to edit hardcopy anymore?” It was a worthwhile question and one that generated excellent conversation on the topic. Of those who responded on the thread, most still included copyedit marks on paper as a component of their teaching. This finding was interesting to us. That teachers of technical editing classes in 2015 were still talking about paper and the proofreading marks an editor might place on the page seemed very dated. We began to consider if practice and pedagogy had drifted apart beyond our expectations and what this meant for our students.

Publicly accessible online resources, in contrast, provide students with myriad resources but little in the way of information on how the field may be changing or the need for new editing competencies. Sites vary in what they offer anyone seeking more information on technical editing, but little is groundbreaking. Online

resources such as Technical Editing: Resources (https://www.prismnet.com/~tcm/program/course_resources/editing_resources.html) or Bay Area Editors Forum (<http://www.editorsforum.org/>) provide links to standard fare such as style guides, professional societies, and general resources. It is important to note, however, that most of the monthly forum activities are dated 2012 or earlier, with a number still showing dates from the 20th century.

What’s ironic is that most of these resources seem to ignore the job descriptions of the contemporary technical editor—a finding we have found compelling in terms of how we begin our courses. One of the initial exercises we have students complete is a survey of job sites, such as STC and monster.com, for technical editing jobs. We also ask them to talk about their ideal editing job—what would they be doing and need to know?

Considering the Technical Editing Textbooks

Next, we wanted to examine the popular textbooks used in technical editing classes. To determine which books were in demand, we used the seller’s ranking numbers from Amazon.com to verify which of the technical editing textbooks are most popular. Amazon’s ranking model has a best seller’s rank and, in a sub-category system, ranks books in additional detail. For our purposes, we were interested in the following ranking model:

- Books > Reference > Writing, Research & Publishing Guides > Writing > Technical
- Per Amazon’s ranking system, the books examined here are:
- Rude and Eaton (2010): #38 in Books > Reference > Writing, Research & Publishing Guides > Writing > Technical
- Tarutz (1992): #242 in Books > Reference > Writing, Research & Publishing Guides > Writing > Technical
- Amare, Nowlin, and Weber (2011): #480 in Books > Reference > Writing, Research & Publishing Guides > Writing > Technical
- Murphy (2010): #693 in Books > Reference > Writing, Research & Publishing Guides > Writing > Technical

Where a publisher’s package existed—a textbook bundled with an online resource product—we selected to examine the textbook-only rank.

First, Rude and Eaton's text, at #38, provides students with reliable information concerning copyediting, grammar, and even the architecture of information. One chapter discusses electronic editing through a brief overview of how soft copy editing can be accomplished; however, like the others, Rude and Eaton's work does not address what technical editors are doing now on a daily basis. And it seems that those composing textbooks tend to believe that an editor's tasks haven't changed that much—digital editing still takes a backseat to hardcopy and traditional copyediting symbols in most of these texts.

Judith Tarutz's 1992 text has not been revised since its initial publication but still ranks as #242 in bestsellers sales for the subcategory. Her text covers what one might have considered "the essentials" of print-based technical editing 25 years ago—in addition to discussing the role of the editor, she discusses the topic of editing in desktop publishing environments and whether or not "software can replace you."

Amare, Nowlin, and Weber's *Technical Editing in the 21st Century* (2011) situates itself as focusing on "not only the process of editing and the product that is being edited, but also on the process of becoming an editor" (Preface, xviv). Their text, ranked at #480 in sales, does include a chapter on working with tools and technologies with a discussion of Microsoft Word basics, such as using styles and generating tables of contents. Additionally, editing that can be done in Adobe Acrobat—comments, page-level modifications, minor text changes—is also briefly covered. Amare, Nowlin, and Weber include a timely three-chapter unit on editing for online publications. They discuss key issues such as HTML, readability, and organizational structures for Web-based documents. However, while their publication is more modernized than Tarutz's, Amare, Nowlin, and Weber still omit what editors will undoubtedly need to know for current practice.

Avon Murphy's 2010 edited collection, *New Perspectives on Technical Editing*, offers a good overview of technical editing but is not a textbook. While the chapters provide insights on the origins and practices of editing (e.g., Geoff Hart's assertion that editors will need soft skills, software skills, and survival skills in their future jobs), they do not offer a complete course of instruction for what editors may be expected to do on the job.

Thus, what we see in the current literature is an impasse: No one has a singular direction with respect to our next steps. The common textbooks for technical editing classes, while covering text and print-based copyediting well, don't address the diversity of the actual profession. Chapters detailing work with audio, video, accessibility requirements, and more were notably absent from these texts.

The State of the Technical Editing Course Description

For us, the question of how technical editing courses are framed for students was paramount. We had assumed that course descriptions would describe a fairly traditional model, one in which there is an emphasis on copyediting, markup, and other similar practices. It was important, however, to confirm if our assumptions were correct by seeking out samples of typical course descriptions.

An online search using the keywords "technical editing course descriptions" provided us with overviews of various classes at a variety of universities. These classes, all part of the offerings in well-established programs, told a compelling story. A sample of our results from the SERP (Search Engine Results Page) is as follows:

Rutgers University—Technical Editing 355:365

Technical Editing will introduce you to the basic principles of editing documents for grammar, syntax, organization, style, emphasis, and audience awareness. The course will focus on the role of the editor in organizational settings; the common methods of copy marking documents using established symbols and conventions; distinguishing between grammatical and stylistic emendations; the principles of contextual editing; basic editorial activities, especially in the context of collaborating on long documents; methods for analyzing, critiquing, and revising manuscripts for different audiences; and techniques for creating successful writer/editor dialogue. The course will also review the most common writing errors to increase your mastery of grammar, mechanics, punctuation, and spelling

University of California Extension—Basics of Technical Editing WCWP-40307

Learn the tools and techniques of technical editing and practice marking indisputable errors in spelling,

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grammar, punctuation, syntax, and usage in technical documentation. Edit technical writing using MS Word and Adobe Acrobat (Reader or Professional), learn to communicate with authors and editors, and practice writing queries and creating style sheets. Get a perspective on the field. Whether new or seasoned, students completing this course are equipped to use and implement technical editing skills and tools in a variety of work situations.

New Jersey Institute of Technology— Professional and Technical Editing PTC 624

This seminar introduces students to contemporary editing strategies. As information managers within organizations, twenty-first century editors must be able to demonstrate proficiency in a wide range of areas, from working with writers to improve the tone of a manuscript to providing warranted evidence in support of copyediting changes. Topics will allow students to encounter a wide range of experiences, from production-oriented aspects of project management to document-based forms of electronic editing. Students will undertake simulations of information management, edit print and electronic media from a variety of fields, and complete a case study of their choice.

Northeastern University— Technical Editing TCC 3210

Examines the role of the technical editor in business, industry, the sciences, and within organizations. Identifies technical editorial techniques: proofreading, correcting grammar and syntax, correcting spelling, and researching technical terms and methods available for the analysis and critique of manuscripts/media. Describes working with authors, technical writers, and subject-matter experts (SMEs) such as scientists and engineers. Offers students an opportunity to practice technical editing skills, project editing, creating a consistent look and feel to documents/media, revising and rebuilding projects, working collaboratively, and presenting edits and corrections.

Arizona State University— Technical Editing ENG 374

Advanced writing course that prepares students to make informed decisions as editors and information

designers. Involving the rhetorical and social perspectives of editing a text, this course simulates many of the experiences that editors and writers face in the workplace and provides opportunities for students to work collaboratively with authors inside and outside the classroom.

Throughout this interactive course, students will: learn principles for critical analysis of technical discourse; learn proofreading skills, copyediting techniques, and comprehensive editing procedures, including working with authors from the beginning of the writing process to completion of a document; gain expertise in traditional areas of editing, such as style, grammar, punctuation, and formatting; work on editorial teams to learn to make informed rhetorical choices about the process of producing professional/technical documents; and learn to communicate professionally in a variety of business and technical applications.

The descriptions of classes at a broad sample of institutions demonstrate a focus text-based editing work. As we had expected, there was an emphasis on copyediting, markup, grammar, and other similar practices.

Multimodal Composing/Communicating and Editing

For over a decade now, scholars have noted the need for students to compose in multimodal environments: “In an increasingly technological world, students need to be experienced and skilled not only in reading (consuming) texts employing multiple modalities, but also in composing in multiple modalities” (Selfe & Takayoshi, 2008, p. 3). Indeed, many have echoed Takayoshi and Selfe’s call to have students become conversant with multimodal composing (Miller & McVee, 2014; Bowen & Whithaus, 2014; Anderson, 2008; Wysocki, 2007). Additionally, Gunther Kress (2001; 2014) and others have been examining from both theoretical and practical perspectives the role of multimodal communication in the sciences, particularly the scientific classroom. However, perhaps in the rush to teach students to create multimodal artifacts, we in technical communication didn’t think as much as we should have about how to teach them to act as editors of the same artifacts, especially those that are team-generated. We heard time and again “get them working with x because they are familiar with x,” whether “x”

referred to Web-based writing, audio, video, or social media writing. But because students are familiar doesn't mean that they are good at those things or that they recognize strengths or deficiencies in others' digital publishing platforms or know how to articulate what they do see in those platforms. And if they don't have these other abilities, as editors, they will not be able to articulate the issues with an artifact and make changes or issue recommendations for others to make changes.

Designing the Course: First Iteration

The course description of the Technical and Professional Editing course under examination provides only cursory information:

Methods of editing and publishing in business, science, technology, and the professions. Practical experience with editing reports and publications produced in the university and community.

In redesigning the syllabus, then, we clearly faced several challenges. First, based on our examination of course descriptions, textbooks, and other media, as compared to the jobs we saw online, our first step was to redesign the syllabus to make skills being taught match more closely what current editing jobs asked of applicants. Second, we needed to properly introduce students to the profession through the syllabus. We surmised correctly, as our results would bear out later, that students were unsure about what "editing" means, especially "technical editing." They presumed editing meant grammatical correctness in text only. Or, as many hoped, the course would be centered on helping an author shape multiple character trajectories in swords and sorcery fantasy adventure. Key to our success would be how we brought multiple competencies into the course via the syllabus to encompass both the traditional and new conceptions of technical editing.

Our initial description and learning outcomes read as follows:

Course Description. While most people associate editing with red pencils and markup symbols, contemporary technical editing involves much more. In this course, you will gain experience editing print, Web, visual, audio and video "texts." We'll begin this course by asking "what

do technical and professional editors do?" We'll then spend a few weeks reviewing the tools of the trade that are critical to good editing—understanding rhetorical principles, elements of writing, basic rules of grammar and style—and learn to apply those using MS Word and Adobe Acrobat. We'll then move on to theory and practice of editing audio, video, and websites.

Expected learning outcomes

Upon completion of the course, students should be able to:

- Demonstrate an understanding of the principles of structural editing and copyediting
- Use electronic tools to assist in the editing of text and Web documents
- Apply principles by articulating editing strategies for websites, audio, and video artifacts through the construction of editing plans

We divided the course, then, into four modules. Each module would run several weeks, and, ideally, scaffold skillsets throughout.

- Module 1: Editing Essentials
- Module 2: Audio
- Module 3: Video
- Module 4: Editing for the Web

Module 1: Editing essentials

In the first seven-week module, students were introduced to the core concepts of editing. For us, that included considering the breadth and depth of what an editor does, so topics covered included a review of key rhetorical concepts, comprehensive editing, copyediting, and editorial markup. It also covered other activities we felt were important to the growth and development of our editors-in-training. We spent one day discussing the particular needs of editing for non-native English speakers and doing an in-class activity built around this premise. Also, because the class is "technical editing," we felt it was important to have students explore not just job descriptions but the idea that medicine, biology, and even engineering have their own style guides that dictate conventions. Finally, this was the module where we introduced students to the advanced functionality of two commonly used software programs: Microsoft Word and Adobe Acrobat. Here, students explored advanced features and created and edited print-based tutorials for the class.

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A note about the editing plan memos for modules two, three, and four

Given the emphasis in today's workplace on workflows, simultaneous editing and synchronization, and access and versioning control, we wanted to impress on students the importance of a clearly composed memo to convey an editing plan to a team of developers and authors. The editing memo became the critical artifact produced, as it demonstrated each student's ability to articulate ideas for improving the product in a tone and vocabulary considered professional and knowledgeable in relation to audio, video, and Web.

Module 2: Audio

The course then transitioned into the second module, audio editing, which lasted two weeks. During this time, students were introduced to a free audio creation and editing application, Audacity. After discussing basics of audio and audio editing and working with multiple track recordings in class, students created a 60–90 second clip on an editing topic that used at least two tracks (a minimum of voice and music, incorporating fades and transitions). We played these in class, had authors discuss the content, technical, and editing challenges they dealt with in creating the clips, and then every class member, based on their notes from the crowdsourced feedback sessions, wrote a brief memo to each of their peers with suggestions for an editing plan.

Module 3: Video

The video module also ran for two weeks. We first discussed basic elements of instructional videos, including establishing audience and purpose for the video, the scripting of standard introductory and concluding material, steps of the process to be videoed, and location and perspective for shooting. The class also looked briefly at the issue of quality of audio, images, and video. Armed with this information, students were to pick a poorly executed instructional video on YouTube for a task like learning a function in Word or Acrobat. Then, they were asked to determine, as editors, what feedback they would give the creators of the video for editing and improving the piece.

Module 4: Editing for the Web

In this module, the class was introduced to the basics of HTML and especially the relevance of HTML 5.

Writing and editing for the Web, with an emphasis on a variety of screens was covered. This module also focused on two important editing tasks for the Web: 508 compliance and SEO (Search Engine Optimization).

Section 508 requires that technologies including websites are accessible to persons with disabilities. Unfortunately, the tags and code on many webpages do not meet compliance standards and require the work of an editor; thus, this was covered in our second module. SEO was another important task for an editor. SEO involves code-level work similar to that of 508 compliance. It also involves creating meaningful tags, researching/implementing key words, writing meta-information, and more.

Students turned in two assignments: the first dealt primarily with the 508 compliance—students were to evaluate public-facing site pages for compliance and write a memo to site creators with recommended changes. The second assignment was an editing memo to site creators that dealt with both content and design elements, recommending changes as appropriate.

Student reflections

Following the final class meeting, students were emailed a few questions and asked to respond via a hard copy memo left in the instructor's mailbox (so that feedback would be anonymous). The questions included the following:

1. Based on examining the various job skills and requirements (technical/inter-personal) for editors, how do you see yourself as prepared to enter the workforce?
2. What do you think is the best thing you learned in this class? Explain.
3. What surprised you the most about this course and its content? Explain.
4. Do you feel your competency with written grammar has increased? If yes, how? If no, should this course focus more on integrating writing basics into the curriculum? Explain your ideas here.
5. Do you see the content of this course as being valuable to other courses you'll take both in the program and as electives? How?
6. What should the course do differently next time, if anything? Anything else you'd like to add?

We received responses equal to course enrollment, and perhaps the most surprising response was that the

majority believed that they would benefit from more time working on grammar and copyediting. However, a few respondents felt that grammar should not be heavily emphasized. As one student noted:

I believe the short lesson addressing particularly tricky grammar issues was perfect for this course. Basic grammar should not be an issue in a 4000 level English course, so soliciting students for grammar questions was an efficient and effective way to address the issue without sacrificing too much focus from the meat of the course. Furthermore, compiling the lesson into a short reference document was ideal. At this level, competency with written grammar should be part of the foundation that students bring into the course, so the goal should be to give us the tools to build on that foundation, and I think that goal was met. Taking time to look at style guides was also very beneficial: Not only does this help with grammar issues, it teaches us that even within the scope of “correct grammar”, there are still important choices to be made.

Another echoed these thoughts:

I enjoyed the grammar review. I don't believe that this course should focus more on integrating writing basics; it's a senior level English class. That's got to be covered somewhere else. If that need isn't already filled, I could see a one hour (online) required copyediting course being helpful, but there is really too much extremely valuable material to cover in the rest of the class to focus on something that English students should already know at this point in their career.

More representative of the group's thinking in terms of grammar and copyediting were the following comments:

Overall my competency with written grammar has increased over the course of this semester. I think one way to further help students in this area would be to require a thorough grammar book to read and engage with over the semester. Perhaps, ten minutes per class period could be dedicated to talking about that required section.

And

This course was structured very well, but I would have liked to spend a bit more time with grammar and copyediting.

Other respondents also noted that they needed more practice applying rules of grammar in their own work, even to the extent of giving regular grammar quizzes. However, it was also clear that the group valued the variety of experience. Perhaps the following best reflects that thinking:

The best thing I learned is how little I know about the vastness of the editing field today. Specifically, I learned that I need to learn more about audio and video editing as well as web design in order to better equip myself as a prospective editor. I also had a very important realization early on in the course: When we analyzed that poorly written furniture assembly instruction manual [...], as we passed the pages around, it really dawned on me that what we do as editors has a tangible impact on the world around us. This seems trivial, but I can be somewhat of a “tactile learner”. There is much to be learned from studying easily distributed PDF's and books, but something about holding an artifact from the real world which epitomized poor editing drove home the idea that our job has serious implications and responsibilities. Needless to say, I found the exercise to be very beneficial.

These responses highlighted and generally praised the redesign; alongside, though, they demonstrated the inadequacies that several respondents felt in terms of what should be foundational knowledge for editors—grammar, mechanics, and the like. This bifurcated feedback indicates that the senior-level editing course needs a more structured system of prerequisites. However, before addressing that larger question, we chose to revise and reteach the course.

The second iteration: Fall 2015

We believed, based on instructor observation and student response, that we had a viable new syllabus; however, armed with what both instructor and students reported, we made a few changes to the syllabus for the Fall 2015 semester. Module 1, Editing

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Essentials, remained as was. However, we added supplemental readings that focused on basic grammar and mechanics that students were to complete during the first eleven weeks of the course. We also began the course with an editing exam that enabled students to see quickly what they knew and did not know in regard to grammatical conventions. The culminating activity of the first module, creating a knowledge base for using editing features of MS Word and Acrobat, remained the same.

Changes also occurred in Modules 2 (Audio) and 3 (Video). Another surprising development, given lore, was that many students were not familiar with working with audio or video as content producers, let alone editors. One or two were, as part of their current jobs, but for many, this was their first exposure to producing or editing audio and video. Given this inexperience, we told students to repurpose portions of their knowledge base material as the content to adapt for their podcast or screen capture video rather than making them develop new content. Thus, students could focus on the medium as the primary content—by using material that they’d previously developed, they could carefully consider how strategies they found effective for communicating in text were or were not adequate in the different medium and spend more time producing and editing material. To address the common concern that students needed more practice with print-based editing and mark-up, we workshoped the editing memos for both modules in class. Finally, we were able to introduce another workplace element, the dispersed workgroup, as the Fall 2015 course was a hybrid—half of the students were onsite, and half were online, and collaborations occurred in virtual space.

Student reflections

This group of students was posed a similar question set for a final reflection. Overall, students again found the course content useful and surprising in the ways it moved beyond copyediting—which was what most entered the course thinking was the primary task of editing. However, students in this cohort seemed to value the non-text based work more so than the work involving text-based editing, as the following indicates:

I was pleasantly surprised by the variety of editing projects that went far beyond old-fashioned copyediting. I found the Audio Editing Assignment

and Video Editing Assignment particularly enjoyable, because they stretched my comfort levels. I had never created a podcast or a close-captioned video, so I was thankful for the opportunity to expand my multimedia-creating horizons.

Another student, a graduating senior, had this to say about the course:

Before taking English 4366, I thought a professional editor read and corrected grammatical errors. I did not however, understand how important it was to utilize basic editing tools that were in Microsoft Word or Adobe products. Using tools and techniques that aid your overall editing process increases how effective of an editor you can be to clients or a project team. I now understand being a technical editor goes beyond merely editing for grammatical errors and sentence structure, but also incorporates the purpose and structure within the documents during the editing process.

And, lastly, some students still returned to the focus on grammar and mechanics (here lumped under the term of “copyediting”):

There were a lot of things that we went over throughout the semester and they all had a major impact on me, but the one thing that stuck with me the most was copy editing. I am not in the field yet so I don’t really know how much it is actually used, but one thing I do know is that in the four years that I’ve been in college this was the only class that I’ve ever gone over it.

Lessons Learned

Given our experience with the first iteration of the course, did the lack of comments in the reflective writing indicate that we had solved the “grammar/mechanics v. other types of editing” dilemma? It’s tempting to think that, but likely not. Granted, the course’s official documents proposed more discussion of the rules of grammar and mechanics, but the realities of the course made us consider the following:

- In a course with 160 minutes of instruction per week for 15 weeks, there wasn’t enough time to

complete a systematic review of grammar and mechanics along with the many other demands of the course.

- Students enter editing courses with a wide range of competence in fundamental skills (not only writing correct, standard, edited English but the ability to articulate and fix errors in said work); some need a much more comprehensive refresher than others—so is the editing course the place to make it happen?
- The revised curriculum of the editing course adds demands on the instructor—she should be able to teach the composition and editing of artifacts in print, digital print, Web, audio, and video—current faculty teaching the technical editing course may or may not have that level of expertise in all areas.
- The revised curriculum also turns the editing course into a survey course of sorts; while students can now claim experience with editing various types of artifacts, they certainly cannot claim professional competence with any of them.

Thus, while we can claim to have created an editing course more in step with the needs of those hiring professional editors, we can clearly do more to prepare our students for the 21st century workplace in terms of technical editing:

- Integrate editing components into such courses as advanced Web design, information design, and the like.
- Create a supplemental “intensive copyediting and grammar course” to meet the needs of students who believe they need a refresher in rules of standard edited English along with additional practice in recognizing and marking up these errors.
- Create a second course, “Editing for Audio, Video, Images, and the Web,” that students take following the print and digital text editing course

In Higher Ed

While we see our recommendations for revised technical editing classes as necessary for technical communication programs and their students, we also understand that implementation may present several obstacles, as follows:

Faculty competencies

As we stated earlier, many faculty may possess neither the comfort nor expertise with moving a technical editing class toward multimodality. Rather than feeling obligated to be the “Sage on the Stage,” faculty should embrace learning with their students and exploring tools and technologies. Many universities offer free short courses as part of their teaching and learning opportunities for faculty.

Curriculum battles

The pitfalls of the curricular approval processes at colleges and universities are especially noteworthy. Thus, implementing our recommended changes in terms of both modify existing courses or creating new ones may not be easy. Digital technologies and emerging media courses are hotly contested commodities in higher education. Programs in communication studies, new media, instructional design, and more all lay claim to the digital domain and argue vigorously against other programs or departments adopting technology-focused classes. It will be critical for departmental committees to frame the context of technical communication and technical editing carefully in order to pass various committees reviews

Student perceptions

Students weren’t displeased with the course—far from it. However, marketing technical editing classes, especially with the content proposed here, will be critical. Differentiating the content from editing classes in other disciplines (journalism, public relations, marketing) will be important as will ensuring students in other disciplines aren’t blocked from taking the class due to a lengthy string of prerequisites. Beyond freshman English classes, students should only require the institution’s introductory technical writing class.

Conclusion

We believe technical editing courses require significant revision in order to meet the marketplace demands for new editing competencies. While some editing jobs will fit the framework of the traditional technical editing class, it is clear to us that the field is changing. Students, however, still want to be comfortable with copyediting but are receptive to the idea that editing now encompasses more than spelling and grammar.

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To make these changes, academic programs will need to consider not only one course in editing but potentially a sequence of courses that incorporates the fundamentals and new digital competencies required for editing. These changes won't come without challenges for colleges and universities, but our students will be better prepared for the work they will do right after college and throughout their careers.

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International Faces of Technical Communication: An Analysis of Job Postings in Three Markets

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Abstract

Purpose: This article investigates technical/professional communication job postings in two non-US markets in order to develop an evidence-based understanding of the ways in which job requirements and responsibilities may differ from those in the US.

Method: We analyzed 474 job postings in India and the United Kingdom/Ireland. We conducted a content analysis of the postings, coding for information products, technologies, professional competencies, and personal characteristics. We compared postings to postings for the US, utilizing ANOVA and CHI square measures to evaluate whether differences in the data were meaningful.

Results: The study reveals substantial variation regarding employer expectations. US postings are characterized by higher experience levels and more qualifications than postings for the international markets, with greater focus on user documentation and reports, working with SMEs, usability/testing, technology, and personal characteristics. The Indian postings are the most distinct from the US positions, with differing experience levels and emphasis on what qualifications are important.

Conclusion: The study emphasizes a need for greater understanding of international technical communication and the ways outsourcing may impact career choices. The variation across markets suggests that we cannot assume standard practices in the US transcend linguistic, geographical, and cultural boundaries. This is important both for meeting the challenges of outsourcing and for international collaborations more broadly. The study also highlights the need for curricula to address the complexities of a global workplace by providing students with both technical communication and intercultural competencies.

Keywords: outsourcing, international, core competencies, India, United Kingdom/Ireland

Practitioner's Takeaway:

- Extends studies that have examined core competencies for the field by analyzing job requirements in two important international technical communication markets.
- Provides evidence-based understanding of professional competencies, personal characteristics, information products, and technologies sought after by employers in India, a key outsourcing market.
- Extends the literature on globalization and outsourcing within technical communication by providing data that can support successful global collaborations and professional interactions.
- Provides empirical data for practitioners addressing the challenges of outsourcing, as well as for academic programs engaged with preparing graduates for the complexities of a global workplace.

Introduction

Fast and relatively inexpensive global communication has created numerous opportunities for the field of technical communication. Foremost among these is that it facilitates user-centered information development that can happen regardless of the physical location of both the writer and the user. It allows for the convenience of remote work and for productive collaborations that would have been unfeasible, if not impossible, even 15 years ago. Partly as a result of these developments, the technical communication workforce is now globally distributed, through United States companies and organizations with international offices and through companies that are based solely in other countries, with no US presence. However, communication flexibility and ease of access to a global workforce have also introduced new challenges for US technical communicators, not the least of which is outsourcing.

Although scholars have examined various facets of the globalization of technical communication, including issues related specifically to outsourcing, there is little research focused on what technical communication actually looks like in international professional contexts. Yet, this knowledge is vital to successful global collaborations and is essential for practitioners in the US and internationally, as they attempt to forge career paths that respond to outsourcing trends.

The goal of our project is to develop an evidence-based understanding of technical communication job requirements and responsibilities in international contexts. We report the findings of an analysis of 474 industry job postings from two English-speaking international markets: the United Kingdom/Ireland and India. We then compare the international data to findings from an analysis of over 900 US job ads (Brumberger & Lauer, 2015). The international study results emphasize the range of abilities required of professional communicators in English-speaking international contexts, but, more importantly, the data highlight intersections and divergences with comparable data for US jobs that may be linked to cultural patterns and practices. The findings have implications for US and international practitioners, as well as for academic programs.

Past Research

Hackos and Hackos (2008) argue that technical communicators need to develop strategies for overcoming international competition. Some of the methods they suggest include single-sourcing and content management, utilizing technology to reduce production costs, and even managing hiring practices and salary increases to keep costs down. Increasing workflow efficiency seems essential irrespective of outsourcing, given the ever-shifting ground of economic downturns, corporate mergers, and competitive markets. However, utilizing interns and “lower cost staff” (p. 119) as cost-reduction measures serves as its own form of outsourcing and ultimately undermines the value and status of technical communication.

A more sustainable strategy—and one that addresses globalization more broadly—is for technical communicators to re-envision their roles. Faber and Johnson-Eilola (2002) contend that a global information economy “requires technical communicators who are constantly reunderstanding and re-presenting their own value in both conceptual and applied ways” (p. 141). Melton (2008) asserts that outsourcing is “an opportunity for technical communicators to redefine themselves and find new applications for their abilities” (p. 124). And yet, on what should we base this redefinition? Put differently, what information can we use to support efforts to reconsider and re-present our value in a global information economy?

As St.Amant (2011) suggests, it is essential to develop an understanding of the ways linguistic and cultural factors, as well as education and training, can shape international technical communication practices. For example, several scholars have commented on language issues in outsourced technical communication produced in India—issues that may stem primarily from the differences between Indian English and US English (see, e.g., Roy & Grice, 2010; Abel, 2013). However, linguistic factors are arguably the most straightforward issues to address; cultural factors are more complicated.

Hofstede’s cultural dimensions, although they are not without critics, have served as a longstanding starting point for understanding cultural values that play a role in behavioral patterns. Hofstede (2001) posits five dimensions: individualism/collectivism, power distance,

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masculinity/femininity, uncertainty avoidance, and long/short-term orientation. Individualism and collectivism focus on the relationships between the individual and groups within a culture. In a highly individualistic culture, the focus is on the individual; decisions are made based on individual needs and preferences, self-reliance is highly valued, and individual achievement is seen as more important than group harmony. Power distance refers to the degree to which people expect and accept an unequal distribution of power; in a high power distance culture, top-down hierarchical structures are typical. The masculinity/femininity dimension refers to a cultural preference for achievement and assertiveness (masculine) vs. cooperation and modesty (feminine), while uncertainty avoidance reflects how members of a culture react to uncertainty and ambiguity. Finally, short- versus long-term orientation refers to the way in which a culture prioritizes immediate challenges or future goals.

Cultural factors also include workplace practices that are shaped by these broader patterns. Because writing is culturally situated (Jeyaraj, 2005)—dependent both upon the writer's culture and upon the writer's understanding of the user's culture—this becomes a critical issue for outsourced technical communication. Barnum (2011) notes that cultural patterns can interfere with the effectiveness of international email communication; it stands to reason that this extends to other forms of technical communication as well, particularly forms for which the end-user is less well-defined.

Although underlying cultural factors are central to workplace and communication patterns, some of the issues raised in the outsourcing literature may stem as much from differences in the training of technical communicators in different markets. For example, in the UK, technical communication has been recognized as a field for some time. The Institute of Scientific and Technical Communicators (ISTC)—comparable to the Society for Technical Communication in the US—was formed in 1972 from three pre-existing related organizations. In addition to publishing technical communication books, a monthly newsletter, and a quarterly journal, the ISTC offers professional development opportunities that include an annual conference, accreditation of training courses, and a mentoring structure (istc.org.uk). The UK and Ireland also have some academic programs in technical

communication and related areas. For instance, the University of Limerick offers both a graduate certificate and a master's degree in technical communication, while other academic institutions offer programs in closely related areas, such as communication and applied linguistics, science communication, communication design, and translation studies.

In contrast, technical communication as a field was relatively unknown in India before the 1990s, and therefore is less established than it may be in other markets (Sathe, 2009). As a result, Indian technical writers have fewer opportunities to develop professional competencies. Although there is a post-graduate diploma available at the University of Pune (Pandit, 2011), and the academic offerings continue to grow, there are as yet no degree programs dedicated specifically to technical communication, so Indian students seeking such a degree must have the means and the English proficiency to complete a degree online or in another country. Most technical communication training in India instead happens through participation in professional organizations such as Technical Writers of India, through on-the-job mentoring, and through short courses offered by private institutes (Roy & Grice, 2010; Evia, 2008; Natarajan & Pandit, 2008; Padmanabhan, 2011). On-the-job mentoring is, of course, how many technical communicators—not only those in India—layer new knowledge on top of the foundational skillset they bring to a position. However, as Roy and Grice (2010) point out, “Such training might be highly organization-specific and overly specialized to fit specific types of projects” (p. 219); this becomes problematic when the technical communicator lacks a broader grounding in the field, whether that is gained through experience or academic training. The training programs available through private institutes in India likewise do not provide a conceptual or theoretical foundation in technical communication, but instead are very tools-oriented (Evia, 2008). Evia reports that “These programs range from one-day courses to six-month seminars, and most of them focus on teaching editing functions of Microsoft Word. There is very little content about communication or writing theory” (p. 40)—content that forms the backbone of effective technical communication. Indeed, Padmanabhan contends that the situation in India “mirrors the growth of technical communication in the United States before the advent of formal education programs in the field” (p. 52).

As this brief overview suggests, linguistic, cultural, and educational factors all impact international technical communication; an in-depth understanding of these areas can serve as a foundation for technical communicators seeking to redefine their value and reimagine potential career paths in a global information economy. In order to build on that foundation, however, the field needs research that examines how these aspects manifest themselves in the international workplace. For example, we have little research on technical communication practices in the UK, although it is a significant international market. Likewise, although India is the largest outsourcing market for US technical communication, “scholarly research on writing and technical communication in the Indian subcontinent is almost nonexistent” (Natarajan & Pandit, 2008, p. 12).

Melton (2008) argues that technical communicators “who can help organizations solve the communication challenges of outsourcing will be highly valued, whether they come from within the organization or are hired from the outside” (p. 124). Ultimately, solving those challenges requires empirical data that illustrate how technical communication in outsourcing markets compares to that in other international markets and in the US. Are there measurable differences in training and experience levels of technical communicators? In employer expectations of knowledge, skills, and workplace practices? And, if there are differences in these areas, what opportunities might they create for technical communicators both within the US and internationally? These are the questions our study seeks to answer.

Methodology

In order to answer the broader questions posed above, we began with four more granular questions about international technical communication practices:

- What genre knowledge is important to technical communication employers in non-US markets?
- What technology skills do non-US employers expect of technical communicators?
- What professional competencies and personal characteristics are necessary for technical communicators in non-US markets?

- How do the products, technology skills, professional competencies, and personal characteristics called for in each of the international markets compare to one another and to those called for in US jobs?

We subsequently narrowed the questions even further by focusing only on English-speaking markets, specifically Australia, Canada, India¹, Ireland, and the United Kingdom. We focused on these markets for three reasons. First, we needed a manageable scope for the study, in terms of collecting and interpreting the jobs data; we lacked the resources to effectively and efficiently translate job information from other languages. Second, these markets include two centers of international technical communication activity—the UK and India—which provide a broad basis for comparison and, even more importantly, a basis that includes both Western and Eastern perspectives. Finally, and most significantly, one of these markets—India—remains a key destination for the outsourcing of US technical communication.

Data Collection

There are a variety of ways to study the kinds of work technical communicators do on the job, including surveying and interviewing technical communicators and managers, or conducting ethnographic observations. However, when dealing with multiple markets separated by vast physical space and cultural customs, it would be very difficult to systematically measure and compare requirements, practices, and expectations through surveys or site visits. Such a comparison requires consistent and detailed sampling that job advertisements are especially good at providing. Thus, our study utilized a methodology previously developed to examine comparable data for US technical communication jobs (Brumberger & Lauer, 2015; Lanier, 2009). One limitation of this approach is, of course, that we cannot be certain that job postings accurately reflect the tasks and responsibilities of the job. However, even though the postings cannot capture the subtleties of day-to-day practices that field research may provide, they do reveal hiring patterns, and from those hiring patterns, we can infer patterns in workplace practices.

¹ Although English is, of course, not the sole language spoken in India, it is one of India's official languages and the language of technical communication work there.

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We selected Monster.com as the job posting collection site for several reasons. First, we wanted to use only one job search site within each region, in order to minimize the likelihood of duplicate postings, since companies often advertise the same job in multiple places. We also wanted to utilize the same job search site across all regions, in order to reduce the possibility of errors introduced by differences in design and structure across sites. And finally, we wanted a job search site that would return the highest volume of job postings. At the time of data collection, Monster.com and Indeed.com were the two most prominent job search sites with postings for all of the regions we were looking at. A preliminary search with multiple job titles suggested that Monster.com was the best choice in terms of the overall volume of technical communication postings.

For search terms (see Table 1), we drew on job titles identified in US jobs research (Brumberger & Lauer, 2015). However, because job titles are not always consistent across countries, we first conducted a pilot search to ensure that the US job titles were utilized in each of the markets and to determine whether

additional search terms were needed. Based on the preliminary search, we added two new job titles to the search terms: bid writer and technical author.

We collected approximately 600 international job postings in a one-month period from October to November of 2014, and then culled any duplicate postings, as well as postings that were not clearly for technical/professional communication positions. We considered screening out postings from multi-national companies—that is, companies with operations in multiple countries. However, because many technical communication jobs are advertised through agencies, and because company details in the postings are often quite limited, this was not feasible. Additionally, the inclusion of postings from multi-national companies would be more likely to flatten differences observed across regions rather than exaggerate them, so including these postings was unlikely to result in “false positives”—in data that showed differences where there were none.

We ultimately decided to omit the data from Australia and Canada, because there were too few jobs posted to allow for reliable analyses: There were only 29 postings for Australia and 27 for Canada. Although there was a similarly low number of job postings for Ireland, initial analyses revealed no substantive differences between the 20 postings for Ireland and the 196 postings for the UK. Thus, we were able to combine the data for the UK and Ireland, treating them as one region; in the sections that follow, we refer to the combined region as UK-IR. This process left us with a total of 474 job postings in two regions: 258 in India and 216 in the UK-IR.

Data analysis

We analyzed the 474 international job postings for the same variables examined in previous research on job postings in the US (Brumberger & Lauer, 2015). That is, for each job posting, we recorded the position title, industry sector, experience level, and education level requested. We also noted the information products (e.g. reports, user guides, etc.) that new hires would be producing and the technology skills (e.g., software) needed. We then conducted a content analysis (see Huckin, 2004) of the job descriptions, coding for professional competencies and personal characteristics expected of applicants. Competencies are concrete professional abilities, such as editing and project

Table 1. Job title search terms

Content Administrator	Publication Specialist
Content Analyst	Social Media Consultant
Content Architect	Social Media Coordinator
Content Coordinator	Social Media Developer
Content Designer	Social Media Manager
Content Developer	Social Media Specialist
Content Editor	Social Media Writer
Content Manager	Technical Editor
Content Producer	Technical Writer/Author
Content Specialist	Web Content Administrator
Content Strategist	Web Content Analyst
Content Writer	Web Content Architect
Documentation Consultant	Web Content Coordinator
Documentation Specialist	Web Content Designer
Front End Designer	Web Content Developer
Front End Developer	Web Content Editor
Grant/Bid Writer	Web Content Manager
Information Architect	Web Content Producer
Information Designer	Web Content Specialist
Information Developer	Web Content Strategist
Medical Writer	Web Content Writer
Professional Writer	Web Writer
Proposal Writer	

management, while personal characteristics are more abstract traits, such as critical thinking, flexibility, and leadership, conceptual skills that reflect “high-order knowledge and literacies a technical communicator needs to be successful” (Henschel & Meloncon, 2014, p. 5). For the coding process, we utilized the same codes that were developed for research examining technical communication jobs within the US (Brumberger & Lauer, 2015).

Once the data were coded, we compared the job postings for each region to one another and to previously collected data for 914 technical communication jobs in the US (Brumberger & Lauer, 2015). That is, we compared the UK-IR data to the data for India, and we also compared the data for each of the international regions individually to the data for the US. We relied on two statistical measures in order to evaluate whether the differences observed in the data were meaningful.

First, we conducted one-way analyses of variance (ANOVA) to examine whether there were quantitative differences among the three markets. That is, we determined whether the overall number of qualifications—products, technologies, competencies, or characteristics—requested in the job postings varied according to region. Utilizing post-hoc tests, we were able to determine which region(s) differed. Second, we performed contingency analyses (Pearson’s CHI squares) in order to examine whether there was a statistical difference in which qualifications were called for across the three regions. The CHI square compares the observed results to the results that would be expected if differences were due to chance. For all qualifications for which the CHI square returned a significant result, we ran additional pairwise CHI squares (comparing two of the three regions) accompanied by a Fisher’s Exact Test, which enabled us to examine whether the proportion of jobs calling for a particular qualification differed across regions (e.g., did the proportion of jobs calling for “collaboration” differ in the US vs. UK-IR vs. India?). For all statistical tests, we report the results as significant only if $p < .05$.

Results

Throughout the sections that follow, we compare the data for India and the UK-IR to US jobs data (Brumberger & Lauer, 2015). We begin with an

overview of broader differences among the markets before looking more closely at products, technologies, competencies, and personal characteristics.

General market differences

Job categories Based on job titles, five main categories of jobs were evident in the postings (see Figure 1). One of the interesting points that emerges from the data is that the traditional category of “technical writer” is far less prevalent in the UK-IR and India than it is the US, even with the heavy percentage of jobs in information technology across all three regions (see Industry Sectors below). The relatively new category of content developer accounts for just under one-quarter (23%) of the jobs in the US but over half of the jobs in both the UK-IR (51%) and India (58%). It is within this job category that the strongest differences emerge.

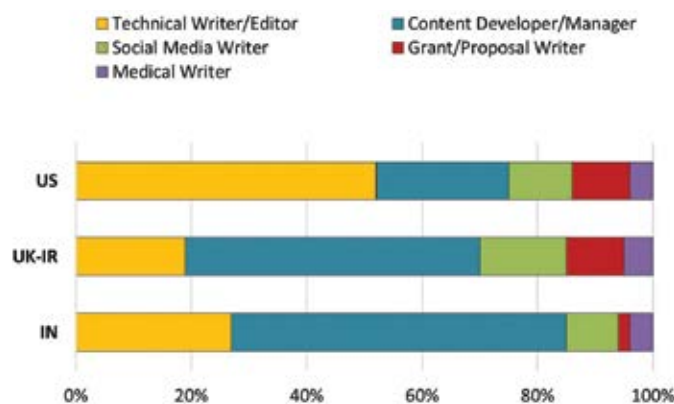


Figure 1: Job Categories

In the US, content developer positions typically encompass a broader range of competencies and writing tasks than do technical writer positions (Brumberger & Lauer, 2015); this pattern held for the international job postings. However, there were numerous inconsistencies in what a content developer looks like in the three markets. For example, US content developer positions typically call for more skill with Adobe Creative Suite and content management systems; as well as HTML, CSS, and JavaScript; than do technical writing positions (Brumberger & Lauer, 2015). In contrast, in the Indian content developer postings, Adobe Photoshop, Adobe Dreamweaver, HTML, CSS, and JavaScript are requested less often than for technical writer jobs. The regional differences are not confined to tools; there are inconsistencies in competencies, personal characteristics,

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and information products as well. Most notable is that the US and UK-IR content developer jobs call for more multimodal work, which is not the case in India.

The UK-IR postings align more closely with the US than the Indian postings do, but inconsistencies across regions suggest that the job title of content developer may not be applied the same way in India, and possibly even in the UK-IR, as it is in the US. These inconsistencies make comparisons across job categories unreliable, as does the smaller number of jobs within each job category for the UK-IR and India. Thus, for the remaining analyses, we consider the job postings from each region as a group, without categorizing them further; we will, however, note results in which the content developer/technical writer distinction and other job categories may play a role.

Industry sectors Figure 2 illustrates the top industry sectors advertising technical communication

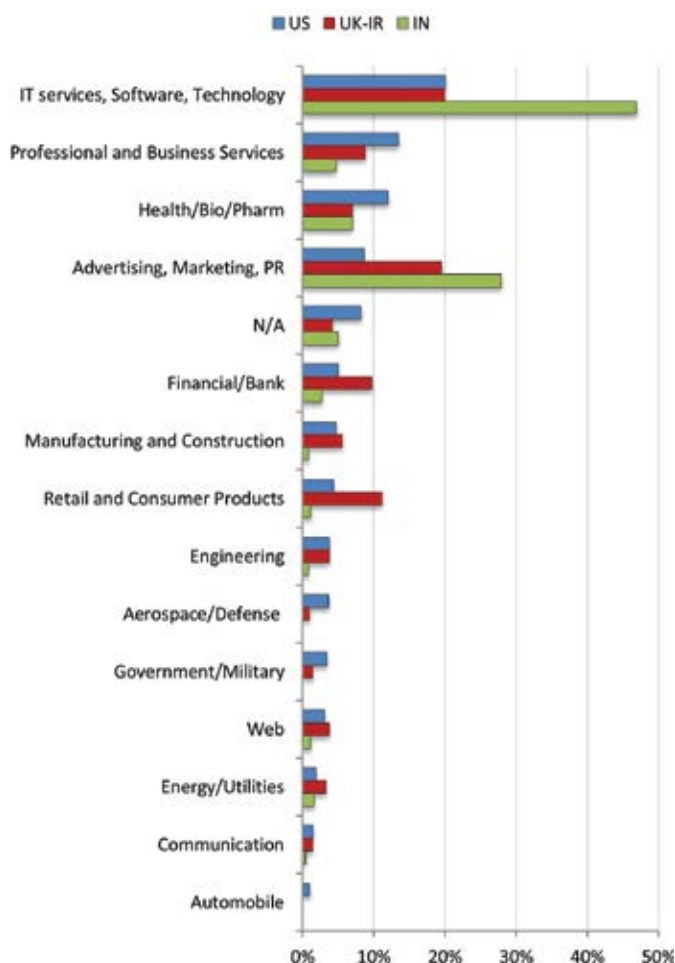


Figure 2: Industry Sectors

jobs. In India, two industries—information technology and advertising/marketing/public relations—account for 75% of the jobs; the jobs in the UK-IR and the US are much more distributed across industries. Not surprisingly, though, information technology, which accounts for almost half (47%) of the India jobs, remains a key industry in both the UK-IR and the US, accounting for 20% of the job postings in each. The only other industry that commands such a substantial chunk of the market is Advertising/Marketing/PR. As Figure 3 illustrates, however, Advertising/Marketing/PR accounts for far more jobs in India (28%) than it does in the UK-IR (19%); in the domestic technical communication market, only 9% of the jobs are in Advertising/Marketing/PR. The numbers may suggest that the line between the technical communication and marketing/PR industries—and their respective skillsets—may be less clear in India and the UK-IR than it tends to be in the US.

Experience levels Experience levels were another area in which there were notable differences across regions (see Figure 3). Virtually all (99%) of the India postings stipulate a range for years of experience, and the experience called for is substantially lower than that in the UK-IR and the US. Just over half (52%) of the Indian postings called for fewer than two years of experience. For the UK-IR, the curve shifts to the right: Only 18% of the positions were specifically seeking applicants with fewer than two years of experience, although 44% did not specify experience level. The curve for the US shifts still farther to the right, this time with peaks at two years and five years, suggesting that, overall, US technical communication positions call for more experience than the UK-IR and Indian positions.

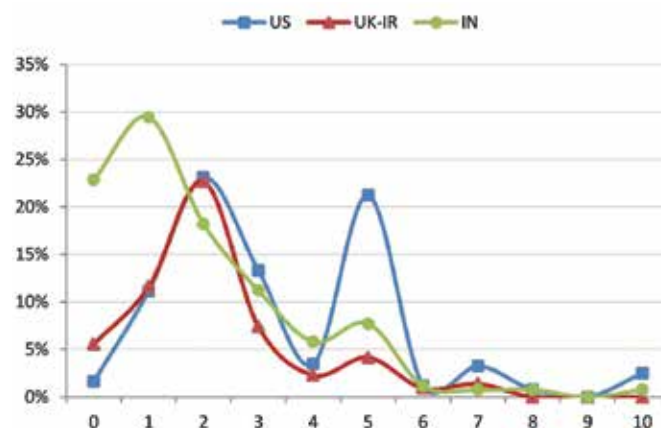


Figure 3: Experience Levels

Education levels As Figure 4 illustrates, education levels for the UK-IR are quite different from India and the US. In the UK-IR market, approximately one-third (35%) of the job postings call for a minimum of a bachelor's degree, while 63% do not specify an education level at all. Again, there is at least one dedicated technical communication program in the UK-IR, as well as others that offer a focus in technical communication or a related area. Still, it is possible that the relatively low number of jobs calling for a bachelor's degree could be due to the limited number of universities that offer a technical communication degree. However, this pattern does not hold true for India.

In India, a bachelor's degree is required for the majority (61%) of jobs, which is true for the US as well (57%), while approximately one-third of the jobs in each region do not indicate an education level. At first glance, the alignment between India and the US in education levels is striking. However, a bachelor's degree in India is not necessarily comparable to a bachelor's degree in the US; many Indian bachelor degrees are three-year programs rather than the four-year standard in the US (World Education Services, 2014). As significant, though, is the content of those degrees. Students can obtain a degree in English, but it is a literature degree (Jeyaraj, 2005). Thus, although the job postings may call for a bachelor's degree, that degree may be only tangentially related to technical communication work, which is less likely in the US, where there are now numerous technical communication programs.

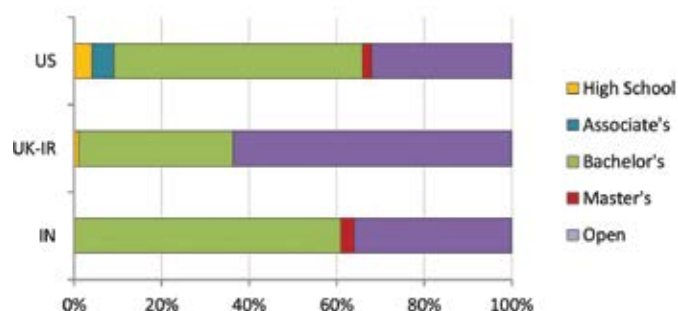


Figure 4: Education Levels

(percentages under 1% omitted)

Information products

Information products are the various genres and content types that applicants produce on the job. As shown in Figure 5, the job postings in all three

markets reflect a diverse set of information products, but there are measurable differences in the genre knowledge expected. Overall, however, the Indian postings mention fewer products, on average, than either the UK-IR ($p=.001$) or the US ($p=.001$), the latter two of which are comparable to one another in the number of products.

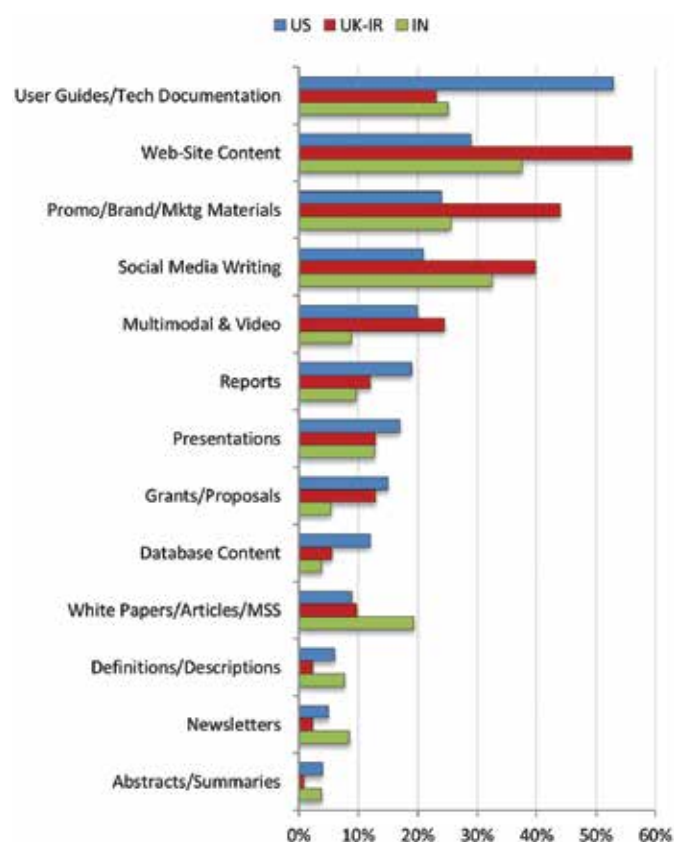


Figure 5: Information Products

A series of chi squares revealed that there were also statistically significant differences across regions in terms of what information products are called for. The sharpest difference is in user guides/technical documentation, which are called for in 53% of the US job postings but only 23% and 25% of the UK-IR and Indian postings, respectively ($p<.0001$). Reports and database content also appear proportionally more often in US jobs than in either UK-IR or India jobs ($p<.001$). Grants/proposals and multimodal/video content were both more prevalent in the US and UK-IR than in India ($p<.001$). The former can be explained by the fact that there are few grant writing positions among the India job postings.

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The difference in multimodal/video is particularly intriguing. Multimodal/video appears in 20% of the postings for the US, and 25% of those for the UK-IR; however, it appears in only 9% of the Indian postings. This substantial difference may point to a focus on verbal communication over visual communication in Indian technical communication (see Competencies, below). It may also reflect technical limitations that makes multimedia and video content less functional in India. For example, India has an average connection speed of 2.5 Mbps, compared to 13 Mbps in the UK, 12.4 Mbps in Ireland, and 12.6 in the US (<https://www.akamai.com/us/en/multimedia/documents/report/q3-2015-soti-connectivity-final.pdf>).

Three products dominated in the UK-IR job postings. Website content and promotional/marketing material appeared more frequently in those postings (56% and 44%, respectively) than in either the US or the Indian postings ($p < .0001$). Additionally, social media writing was more prevalent in the UK-IR postings (40%)—and in those from India (33%)—than it was in the US postings (21%) ($p < .0001$). The substantial number of jobs in the UK-IR and India that mention social media writing—despite the fact that social media writing jobs comprise only 15% and 9% of the total jobs in those regions, respectively—demonstrates the rise in importance of social media communication across all kinds of technical communication jobs. It may also reflect the greater percentage of jobs in Advertising/Marketing/PR in those two regions, and the greater proportion of jobs with a content development focus, as compared to in the US.

And finally, two products appeared more frequently in the job postings from India than in the postings from either the US or the UK-IR: white papers/articles ($p < .0001$) and newsletters ($p < .01$). These products coincide with the greater emphasis on written communication requested in Indian jobs (see Competencies, below). Website content was significantly more prevalent in the postings from India than those from the US ($p < .01$) but, as noted above, was less prevalent in the Indian postings than in the UK-IR postings ($p < .0001$).

Technologies

Technology is an area in which the US jobs postings look quite different from the international postings we collected (see Figure 6); the US jobs place more

emphasis on technology than either the UK-IR ($p < .0001$) or India ($p < .0001$), while the latter two regions are comparable to one another in the average number of technologies called for in the job postings.

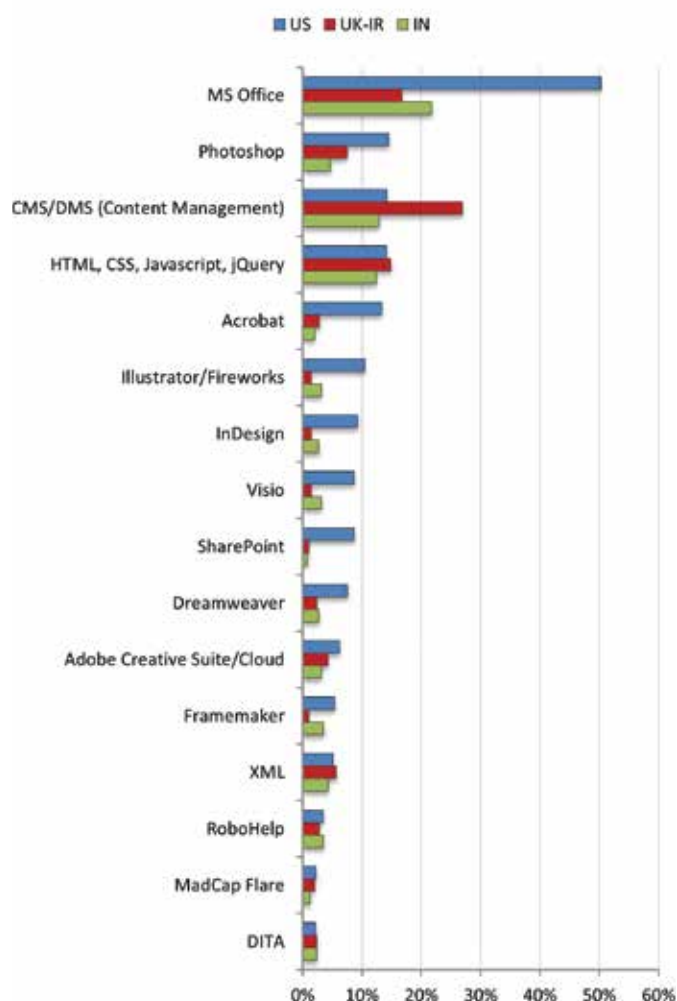


Figure 6: Technologies

Additionally, the regions differ regarding which technologies are in demand. Perhaps most notable is the dominance of MS Office in the US as compared to the UK-IR and India ($p < .0001$). MS Office is called for in 50% of the US jobs but only 17% and 22% of the UK-IR and Indian jobs, respectively. Likewise, MS Visio and SharePoint are more prevalent in the US job postings than in either the UK-IR or India job postings ($p < .0001$). Additionally, the US postings are much more likely to specify tools within Adobe Creative Suite, including Photoshop, Acrobat, Illustrator/Fireworks, and InDesign (all $p < .0001$); the difference

across regions was smaller, though still significant ($p < .01$), for Dreamweaver.

There is one technology that appears proportionally much more often in the UK-IR job postings than in either the US or the India ($p < .0001$) postings: content management systems (CMS). CMS were called for in 27% of the UK-IR job postings; the US and India were comparable to one another, at 14% and 13%, respectively. This finding is somewhat surprising, in that the prevalence of content developer job postings would lead one to think that CMS would be equally important in India as it is in the UK-IR. This may again point to a difference in what “content development” means in the various regions.

Competencies

While the US and UK-IR job postings are comparable to one another in the number of competencies they require, the Indian postings on average call for significantly fewer ($p < .001$). Additionally, there are marked differences in which competencies figure prominently in a given market (see Figure 7).

Several competencies are significantly more prevalent in the US job postings than in the postings for the other two regions: visual communication ($p < .0001$), research ($p < .0001$), subject matter familiarity ($p < .0001$), working with subject matter experts (SMEs) ($p < .0001$), and usability/testing ($p < .001$). Meanwhile, both content development ($p < .0001$) and Web analytics ($p < .0001$) are called for *less* frequently in the US postings than in the postings from the UK-IR and India, which is in keeping with the different percentages of content developer jobs.

Written communication is the most called-for competency across all three regions, but it is less prevalent in the job postings from the UK-IR than in the postings from the US and India ($p < .0001$), and the same is true for oral/verbal communication ($p < .0001$). At the same time, though, unspecified communication is mentioned more frequently in the UK-IR job postings ($p < .0001$), so it may be that there is simply less specificity regarding communication in those postings. The UK-IR job postings also place greater emphasis on audience awareness ($p < .0001$), client communication ($p < .0001$), and business/strategic planning ($p < .0001$), and less emphasis on editing ($p < .0001$) and research ($p < .0001$) than postings for either of the other two markets. The postings for the UK-IR thus seem to

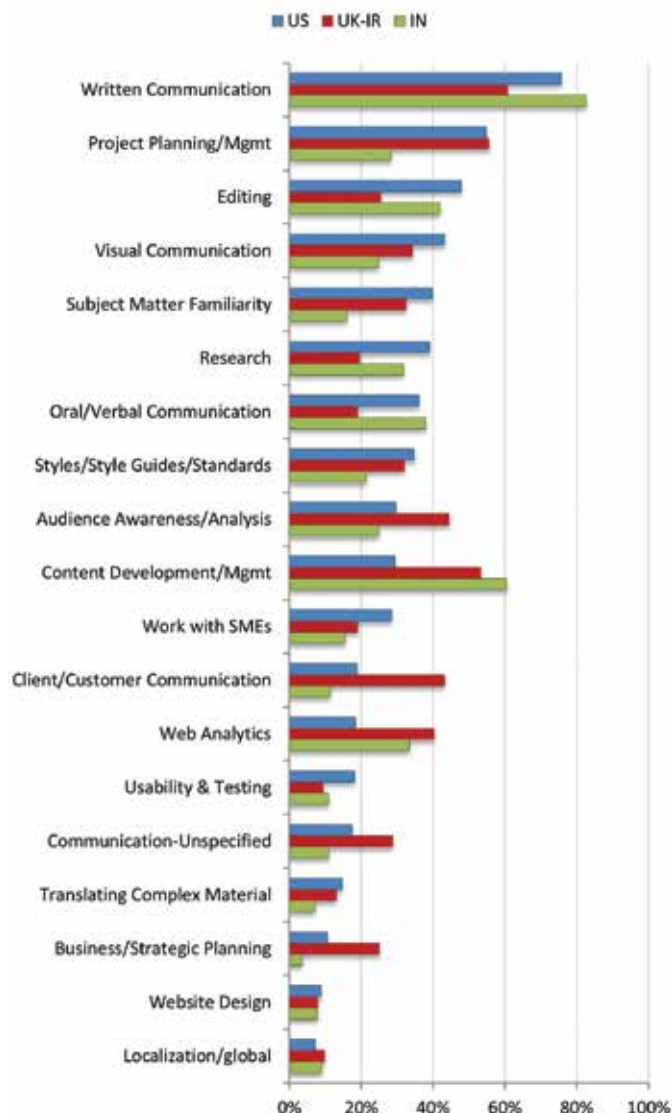


Figure 7: Professional Competencies

be distinguished by a greater emphasis on client interactions. These findings could be related to a greater percentage of jobs in the UK-IR being in retail/consumer products; the data may also point to the higher percentage of content developer positions in the UK-IR. That the pattern does not hold for the Indian postings may again suggest a disparity in how content developer positions are defined in that market.

The job postings for India suggest that these are positions which greatly emphasize written communication, even more so than in the US ($p = .01$). However, styles/style guides and standards are less prevalent ($p < .001$) in the Indian postings, as are subject matter familiarity ($p < .0001$), and translating complex

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material ($p < .01$), which suggests that the written communication being called for is relatively basic. The Indian postings require less expertise in several other areas as well. They reflect the least emphasis on client/customer communication ($p < .0001$) and business/strategic planning ($p < .0001$) of the three regions, and project planning/management is far less prevalent as well ($p < .0001$). This finding suggests these positions require less sophisticated attention to audience and are less advanced positions overall, which may be in keeping with the lower experience levels noted for the region. However, in US job postings, none of these competencies is tied to experience level (Brumberger & Lauer, 2015).

The Indian job postings also give the least attention to visual communication among the three regions ($p < .0001$), which aligns with the low proportion of India job postings calling for multimodal/video content. In the US, 76% of the postings emphasize written communication, and 43% call for visual communication. In the UK-IR, those percentages are 61% and 34%. In India, however, the gap is enormous, with 83% of the job postings calling for written communication, and only 25% calling for visual communication. These differences could be related to technical communication training, to software availability, to Internet speed, and even to what kind of information development work comprises technical communication and content development in India as compared to the US and the UK-IR.

There is one final competency that merits discussion here, and that is localization/globalization. We coded for localization/globalization if a posting indicated that job responsibilities might include any sort of intercultural or international competence, such as working with an internationally distributed team, crafting documentation for users in other cultures or countries, and so on. There is essentially no difference in the frequency with which localization/globalization appears in the job postings in the three regions. However, what is interesting is not the lack of difference but the fact that this essential competency figures so little in the job postings. This finding is disheartening but not overly surprising for the US job postings; as Thatcher (2008) notes, the US has “a long way to go” in terms of overcoming ethnocentrism and increasing sensitivity to cultural differences (p. 216); the data are, however, unexpected for India, given its role as an outsourcing market.

Personal characteristics

The US job postings place a much greater emphasis on personal characteristics than either the UK-IR jobs ($p < .001$) or the Indian jobs ($p < .0001$); the latter two markets are comparable to one another in the average number of personal characteristics indicated in job postings. However, there are again some striking differences in terms of which characteristics figure more prominently (see Figure 8).

Collaboration is the most commonly mentioned characteristic in both the US and UK-IR job postings, appearing in 56% of the postings for each region. Although collaboration is also one of the most prevalent characteristics for the Indian postings, it appears in only 39% of the job descriptions, a highly significant difference ($p < .0001$). A similar pattern holds true for independence/initiative/motivation ($p < .0001$), which appears in 41% of the US postings and 46% of the UK-IR postings but only 27% of the Indian postings. Interpersonal skills figure less prominently, but they follow this same pattern across regions ($p = .01$).

There are also several characteristics that are central to the US job postings but are far less visible in postings for the other two regions. Foremost among these is

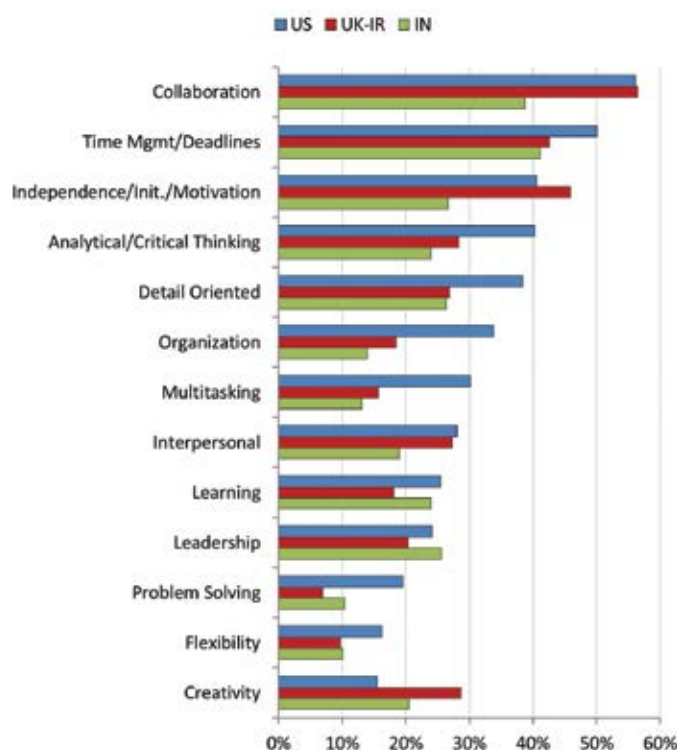


Figure 8: Personal Characteristics

time management and the ability to meet deadlines ($p=.01$), visible in 50% of the US job postings but only 43% and 41% of the UK-IR and Indian postings, respectively. Likewise, analytical/critical thinking ($p<.0001$), detail-orientation ($p<.0001$), organization ($p<.0001$), and even multitasking ($p<.0001$)—all characteristics that we view as critical to the work of technical communicators in the US, and that appear in at least 30% of the US job postings—figure far less prominently in the job postings for the UK-IR and India. Two final characteristics that appear relatively often in US job postings are much less prevalent in the UK-IR and India postings: problem solving ($p<.0001$) and flexibility ($p<.01$).

There is one personal characteristic that is significantly more prevalent in the UK-IR job postings than in either the US or India, and that is creativity ($p<.0001$). It appears in 29% of the UK-IR job descriptions, 21% of the Indian postings, and only 16% of the US postings. Greater emphasis on creativity is typical of postings for content developer positions.

Discussion

Like job postings from the US (Brumberger & Lauer, 2015), the job postings for the UK-IR and India reflect the breadth of work that has come to characterize technical communication. However, the data highlight important differences in genre knowledge, technology skills, professional competencies, and personal characteristics across the three markets.

Overall, the US job postings are characterized by higher experience levels and a greater number of qualifications than the job postings for either of the two international markets. These findings may reflect the maturity of the technical communication field in the US. At the same time, the information products in the US postings reflect a greater focus on user documentation and reports, with an accompanying emphasis on working with subject matter experts and on usability/testing. This seems to suggest that the US market is still dominated by more traditional forms of technical communication, again perhaps because of its longer history in the field or because it is home to larger, more established companies (Brumberger & Lauer, 2015). These differences may also account for some of the differences in the technologies called for across regions, as well as the greater visibility of

technology overall in the US postings. Finally, and perhaps most intriguingly, the US job postings have a much greater focus than either of the international markets on personal characteristics, including analytical/critical thinking, detail orientation, organization, and multitasking—all of which are central to US technical communication work.

Of the two international markets we examined, the UK-IR job postings are most closely aligned with those from the US, with comparable numbers of information products and competencies. However, the UK-IR postings specify fewer personal characteristics and technologies, and they tend to require less experience; they are also less likely to specify a minimum level of education. The data suggest that the majority of the differences between the US and UK-IR job postings can be explained by the high percentage of content development positions in the UK-IR. The UK-IR jobs reflect more attention to client communication, website content, and promotional materials than is visible in either the US or Indian jobs. Additionally, the UK-IR positions put greater emphasis on creativity and on the use of content management systems. All of these differences align with a content development emphasis, particularly when that emphasis is accompanied by a greater share of jobs in marketing-related areas.

The Indian job postings are the most distinct from the US positions. The job titles suggest that the Indian positions are weighted toward content development/management, but the qualifications called for in the postings do not align particularly well with content development positions in the US. Taken as a whole, the Indian postings reflect differing expectations for experience levels and preparation/training, fewer qualifications, and differing emphasis on which qualifications are important, with an overwhelming emphasis on written communication. The findings seem to suggest that the positions in India are largely entry-level. However, in US job postings, the majority of the qualifications called for do not vary with experience levels; they are core competencies of the field (Brumberger & Lauer, 2015). This difference, then, may suggest that the Indian job postings reflect a narrower set of core competencies.

Broader cultural factors may shape some of the patterns observed in the job postings for the different markets, including the quantity of detail included and the types of qualifications emphasized. For instance,

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India differs markedly from both the US and the UK-IR on two of Hofstede's (2003) cultural dimensions: individualism/collectivism and power distance. The US, UK, and Ireland all rank high on individualism, much higher than India, which tends to have more of a balance between individualistic and collectivistic traits (Itim International). In keeping with these rankings, independence, initiative, and self-motivation figure prominently in the job postings for the US and the UK-IR, but not for India. Additionally, given the greater emphasis on collectivism in India, hiring decisions there may well be based less on evidence of one's experience and abilities, and more on relationships, which may explain the less detailed job postings that seem to characterize the market. Similarly, the US, UK, and Ireland all rank fairly low on power distance, while India ranks high. The greater number of products and competencies called for in job postings for the US and UK-IR may in part reflect greater reliance on the expertise of the individual rather than the manager. In India, however, the high power distance would mean an explicitly top-down workplace, in which the manager is the expert who controls and directs the work of his team members, valuing compliance over independence (Itim International).

These and other cultural patterns may account for several of the differences observed in the job data, particularly differences between India and the other two markets. Responding to the challenges posed by outsourcing, then, demands an understanding of underlying cultural factors as well as recognition of the visible differences themselves. Ironically, the job postings for all three markets demonstrate a similar and notable lack of attention to cultural issues.

Implications & Conclusion

Although our study examined only two international markets, it reveals substantial variation across those markets regarding employer expectations for technical communicators. The divergences revealed by the data emphasize how problematic it is to assume that practices and skills accepted as norms in the US transcend linguistic, geographical, and cultural boundaries. As Melton (2011) argues, many of our assumptions about what constitutes effective technical communication are US-centric. Research into additional markets—particularly non-English speaking markets—is needed

and could well reveal more patterns that challenge these assumptions. This is important not only for addressing the difficulties of outsourcing but also for the success of international collaborations more broadly.

Ironically, the lack of attention to issues of localization and globalization in the job postings suggests that technical communication employers in all three regions are either taking intercultural/international competence for granted, or, more likely, are not foregrounding it as a core competency. One could argue that, in an age of globalization, employers simply assume new hires will have a certain degree of intercultural competence. However, the same claim could be made for longstanding technical communication competencies (written communication, e.g.), and those still feature prominently in the job postings. Precisely because most technical communicators produce content that may ultimately be shared globally, our data suggest that employers need to give more attention to issues of localization and globalization as they pertain to technical communication. An ongoing ethnographic study of US technical communicators on the job reinforces this finding (authors, unpublished). For example, at one of our research sites, technical communication work is done by writers in both the US and India. Some of the US writers are paired with Indian writers in a mentoring relationship and express frustration with their mentees' work habits and skills, which they judge according to US expectations. Intercultural training in the workplace would not by itself resolve these issues, of course. However, it would help both groups understand the source of the difficulties and better equip them to collaborate effectively, which could also result in deliverables that are ultimately better suited to their global users.

Our study also offers empirical support for the claim that outsourcing may bring new opportunities for technical communicators. The more extensive skillsets requested overall in US jobs postings as compared to those from the UK-IR and India may provide leverage for US technical communicators who work with employers and clients in those markets. The broad range of competencies called for in US job postings may also help to position US technical communicators to conduct training sessions to help international counterparts better meet the expectations and communication needs of US users. On a more granular level, the data suggest that project planning/

management figures far more prominently in the US and the UK/IR jobs than it does in those for India. This divergence may point to an area in which US and UK/IR technical communicators may be well positioned to take leadership roles in collaborations with colleagues in India. Likewise, the study reveals that visual and multimodal content development, including both conceptual knowledge and tools, are more prevalent in US technical communication job postings. This, then, may be another area in which US technical communicators can make substantial contributions. In each of these areas, however, intercultural competencies will again be essential and should be advocated for in the workplace, even with technical communicators' expertise in working with diverse audiences.

For academic programs, the study serves as a reminder of the complexities of a global workplace and the importance of helping students learn to be flexible and agile thinkers in order to succeed in a competitive market. US curricula include a much greater focus on international issues than they did just over a decade ago (Meloncon & Henschel, 2013), and this is essential. Attention to localization/globalization should be part of every technical communication curriculum and should include discussion of workplace issues and strategies for collaborating with technical communicators from other cultures and countries. Such an approach would help graduates—all graduates, not only those from the US—meet the demands of a global workplace.

As Faber and Johnson-Eilola (2002) contend, globalization is “a complex and diverse process that does not lead to obvious answers” (p. 136). Addressing the challenges of globalization and outsourcing is not simply about overcoming international competition. It is also about recognizing and responding effectively to the myriad complexities of globalized technical communication—its products, its users, its potential impacts. The study we present here is obviously only one feature of an intricate global landscape. An analysis of job postings cannot capture the nuances of the workplace, but it does reveal patterns that characterize the field and are comparable across markets. Likewise, a comparison of three markets is limited in its generalizability, but the questions raised and methodology utilized can serve as one model for investigating and comparing technical communication practices in different countries. In terms of international technical communication and outsourcing, this is

valuable foundational data in an underexplored area, data that can help technical communicators can define their value, maximize their relevancy, and better meet user needs in a continually shifting global market.

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Appendix: Raw Numbers

Information Products	India (258 jobs)		UK-IR (216 jobs)		US (914 jobs)	
	#	%	#	%	#	%
Abstracts/Summaries	10	4%	2	1%	35	4%
Database Content	10	4%	12	6%	120	12%
Definitions/Descriptions	20	8%	5	2%	51	6%
Grants/Proposals	14	5%	28	13%	136	15%
Multimodal & Video	23	9%	53	25%	183	20%
Newsletters	22	9%	5	2%	45	5%
Presentations	33	13%	28	13%	156	17%
Promo/Brand/Mktg Materials	66	26%	95	44%	223	24%
Reports	25	10%	26	12%	176	19%
Social Media Writing	84	33%	86	40%	193	21%
User Guides/Tech Documentation	65	25%	50	23%	487	53%
Web-Site Content	97	38%	121	56%	264	29%
White Papers/Articles/MSS	50	19%	21	10%	81	9%

Technologies	India (258 jobs)		UK-IR (216 jobs)		US (914 jobs)	
	#	%	#	%	#	%
Acrobat	5	2%	6	3%	121	13%
Adobe Creative Suite/Cloud	8	3%	9	4%	56	6%
CMS/DMS (Content Management)	33	13%	58	27%	129	14%
DITA	6	2%	5	2%	20	2%
Dreamweaver	7	3%	5	2%	69	8%
Framemaker	6	3%	2	1%	48	5%
HTML, CSS, Javascript, jQuery	32	12%	32	15%	128	14%
Illustrator/Fireworks	8	3%	3	1%	95	10%
InDesign	7	3%	3	1%	84	9%
MadCap Flare	3	1%	4	2%	20	2%
MS Office	56	22%	36	17%	459	50%
Photoshop	12	5%	16	7%	132	14%
RoboHelp	9	3%	6	3%	28	3%
SharePoint	2	1%	2	1%	79	9%
Visio	8	3%	3	1%	79	9%
XML	11	4%	12	6%	48	5%

Professional Competencies	India (258 jobs)		UK-IR (216 jobs)		US (914 jobs)	
	#	%	#	%	#	%
Audience Awareness/Analysis	64	25%	96	44%	271	30%
Business/Strategic Planning	9	3%	54	25%	97	11%
Client/Customer Communication	29	11%	93	43%	172	19%
Communication-Unspecified	28	11%	62	29%	160	18%
Content Development/Mgmt	156	60%	115	53%	268	29%
Editing	108	42%	55	25%	437	48%
Localization/global	23	9%	21	10%	65	7%
Oral/Verbal Communication	98	38%	41	19%	329	36%
Project Planning/Mgmt	73	28%	120	56%	501	55%
Research	82	32%	42	19%	352	39%
Styles/Style Guides/Standards	55	21%	69	32%	318	35%
Subject Matter Familiarity	41	16%	70	32%	364	40%
Translating Complex Material	18	7%	28	13%	134	15%
Usability & Testing	28	11%	20	9%	165	18%
Visual Communication	64	25%	74	34%	394	43%
Web Analytics	86	33%	87	40%	168	18%
Website Design	20	8%	17	8%	80	9%
Work with SMEs	40	16%	41	19%	260	28%
Written Communication	213	83%	131	61%	692	76%

Personal Characteristics	India (258 jobs)		UK-IR (216 jobs)		US (914 jobs)	
	#	%	#	%	#	%
Analytical/Critical Thinking	62	24%	61	28%	368	40%
Collaboration	100	39%	122	56%	513	56%
Creativity	53	21%	62	29%	142	16%
Detail Oriented	68	26%	58	27%	351	38%
Flexibility	26	10%	21	10%	148	16%
Independence/Init./Motivation	69	27%	99	46%	371	41%
Interpersonal	49	19%	59	27%	256	28%
Leadership	66	26%	44	20%	221	24%
Learning	62	24%	39	18%	233	25%
Multitasking	34	13%	34	16%	276	30%
Organization	36	14%	40	19%	309	34%
Problem Solving	27	10%	15	7%	179	20%
Time Mgmt/Deadlines	106	41%	92	43%	458	50%

Promoting User Advocacy to Shift Technical Communication Identity and Value

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Abstract

Purpose: This study highlights key behaviors three professional technical communicators (TCs) used to enhance their professional identities and value in unique organizational contexts. It suggests that when TCs explicitly promote user advocacy to explain their work practices, it more positively represents the work that TCs do to other stakeholders.

Method: Using an ethnographic perspective, we reflect on how grounding our thinking, decisions, and actions in user advocacy during interactions with non-TCs resulted in successful outcomes.

Results: Promoting user advocacy while conducting user-centered design and user experience (UCD/UX) activities resulted in positive perceptions about our technical communication work; it broadened how non-TCs viewed our work beyond predetermined technical communication contexts.

Conclusion: Promoting user advocacy in tandem with UCD/UX methods may provide a productive avenue for TCs to connect their value to broader organizational goals and promote and preserve positive workplace identities.

Keywords: technical communication value, technical communication identity, user advocacy, user-centered design, user experience

Practitioner's Takeaway:

- TCs who ground arguments about their thinking, decisions, and actions in user advocacy can better demonstrate the positive impact of their work.
- Promoting user advocacy in tandem with UCD/UX methods may help TCs construct, maintain, and preserve positive workplace identities.
- The contributions of TCs in terms of organizational strategy and process management are clearer when TCs are explicit about how their work influences these factors.

Working as technical communicators (TCs) while also enrolled in a Technical Communication and Rhetoric doctoral program, we had the unique opportunity to consider, in real time, what technical communication scholarship tells us about technical communication practice. Regardless of our thoughts on whether scholarship or practice was “right,” one commonality emerged: Our ability to be successful in our workplaces largely depends on our ability to communicate our value to non-TCs. Non-TCs are likely the people who will hire us—in industry or academia. They are the beneficiaries of our technical communication work. Importantly, non-TCs influence our organizational and professional value. They determine which projects we work on, with whom we work, and the scope of our influence.

Reflecting on our workplace experiences, a means to communicate the TC’s value to non-TCs became clear: TCs should explicitly ground arguments about their thinking, decisions, and actions in user advocacy. This approach benefits TCs in three ways: 1) it demonstrates the positive impact of a TC’s work, 2) it helps construct, maintain, and preserve positive workplace identities, and 3) it makes the TC’s organizational strategy and process management contributions clearer.

Accordingly, this article demonstrates how promoting user advocacy in tandem with user-centered design and user experience (UCD/UX) methods enhanced our professional identities in diverse workplace contexts. By framing arguments about how our work impacts users, we positioned ourselves as vital organizational members. Our work products are now viewed less as isolated, sequential additions to existing products or processes and more as much-needed impetuses for important organizational initiatives. Importantly, our technical communication work became more visible and valued in our organizations.

Before we explain key practices used to promote user advocacy, we will review what it means to be a TC and how TCs can promote user advocacy in tandem with UCD/UX methods.

Who Is The TC?

Many scholars provide rich insights into the TC’s identity. There is thoughtful work into what TCs might do (Johnson-Eilola, 2004; Rude, 2009; Rutter, 2004; Slack, Miller, & Doak, 2004); what skills, processes,

and practices they might employ (Andersen, 2014; Conklin, 2007; Hart-Davidson, 2013; Kimball, 2015; Redish, 2010; Redish & Barnum, 2011; Selzer, 2004; Winsor, 2004); and in what socio-cultural contexts they produce work (Britt, 2007; Coppola, 2012; Grabill, 2007; Henning & Bemer, 2016; Henry, 2006; Herndl, Fennell, & Miller, 1991; Knievel, 2006; Pace, 1988; Slack, 2004; Winsor, 1990). Importantly, we know that user advocacy also affords TCs (and their scholarship) valuable “interdisciplinary influence” (Jones, Moore, & Walton, 2016, p. 218). For practitioners, understanding and advocating for users is also critical to making sound content, design, delivery, and process decisions (Blakeslee & Savage, 2013; Ceraso, 2013; Dicks, 2013; Mirel, 2013; Schriver, 2013; Spinuzzi, 2013; Wysocki, 2013).

Ultimately, a TC’s identity defines his or her problem-solving approach. TCs, as symbolic-analysts (Johnson-Eilola, 2004) and user advocates, consider the full design context when they approach a problem. Wilson and Welford (2017) remind us that TCs are “almost always located at the nexus of data, language, and meaning, trafficking in expanding economies of information within organizations” (p. 5). As such, TCs, through their user-centered approach, can add value to a variety of workplace initiatives (Dubinsky, 2004). As Johnson-Eilola (2004) reminds us, “most companies do not understand communication, information, and knowledge. Technical communicators do” (p. 188). In turn, it is the TC who applies a user-centered problem-solving approach to a variety of workplace contexts.

Suitably, TCs can apply UCD/UX approaches that place users at the center of the design or problem-solving process (Ceraso, 2013; Mirel, 2013; Redish, 2010; Redish & Barnum, 2011; Schriver, 2013). UCD/UX approaches safeguard user interests regarding all phases of problem-solving. While TCs conduct their work with a *consideration* of user advocacy (Hart-Davidson, 2013), UCD/UX approaches place the focus on users at the *outset* of a problem. Yet, the formal relationship TCs and UCD/UX professionals have to users does not trump their similarities. Redish and Barnum (2011) note important outcomes of acknowledging the shared interests and practices of TCs and UCD/UX practitioners: It can mitigate industry’s lagging adoption of broader and modern understandings of technical communication, eliminate disconnects between technical communication

Promoting User Advocacy

experience and UCD/UX knowledge, and reduce a lack of cross-publishing amongst TCs doing UCD/UX work. They also remind us that “technical communicators know a lot about user experience, either through education, experience, or both. They are the user’s and the UX practitioner’s ally on design teams” (p. 98). This statement, we believe, applies to all workplace project teams.

In this way, TCs must use workplace interactions (regardless of the type of project they work on) to promote their user advocacy. This article reflects on how promoting user advocacy in tandem with UCD/UX approaches prompted effective technical communication outcomes and positive perceptions about technical communication in the workplace. It articulates the practices and behaviors we used to promote user advocacy in three unique professional capacities: a departmental content strategist, a senior process writer, and a strategic communication consultant. It offers insightful reflections on how TCs can enhance their workplace identities by wearing what Carol Barnum (2011) calls “both hats” of technical communication and UCD/UX.

The next section addresses how we determined the key practices that helped us promote user advocacy when we explained our technical communication work to non-TCs.

Methods: An Ethnographic Perspective

This paper offers an ethnographically informed, participant-observer perspective (Adams, Holman-Jones, & Ellis, 2015; Chang, 2008; Ellis, Adams, & Bochner, 2011; McNealy, 1999) of the conditions and behaviors that helped us promote user advocacy in our work. It explains key practices we believe clarified, reestablished, disrupted, or pioneered new ways of understanding technical communication work.

Our perspectives are not contrived nor derived for the sake of research. Rather, as students of the same PhD program, common coursework afforded opportunities to study and discuss our professional experiences. These discussions invariably led to two core inquiries: 1) What specific behaviors positively support our technical communication work, and 2) How do these behaviors relate to perceptions about technical communication in the workplace? Accordingly, the key practices presented here are a direct result of our

personal observations, interactions, activities, dialogues, and reflections. In some cases, we reviewed individual meeting and project notes to recall what guided our interactions with non-TCs in our workplaces. Additionally, these reflections are based on recall about our interactions.

While ethnographic perspectives can be suspect in their limitations and bias (Denzin, 2003; Cross, 1994; Patton, 2002; Collings, 2009; DeWalt & DeWalt, 2010; LeCompte & Schensul, 1999), our embedded and trusted vantage point combined with UCD/UX methods afforded us ethnographic-thick description of the organizational culture, verbatim input, field notes, and contextual descriptions of our representative users (Ager, 1992; Atkinson, 2002; Emerson, Fretz, & Shaw, 1995; Fetterman, 2010). This embedded vantage point afforded us powerful casual ethnographic research (the ethnography was not the planned research design) on the inter-relationship of the stakeholders and the workplace problems (MacNealy, 1997).

Our ethnographic reflections articulate key practices that helped us conduct successful technical communication work and expand other people’s understandings of technical communication. The next section explains these key practices and the workplace contexts in which we used them.

Individual reflections and key practices to promote user advocacy

Our interactions with managers, co-workers, and clients were guided by eight key user advocacy practices. In reflecting on our experiences, we argue that TCs can benefit from interactions where they:

1. Help stakeholders understand the benefits of good user research processes and experiences.
2. Connect user needs to organizational goals.
3. Articulate how content and design decisions align with known user characteristics, needs, and wants.
4. Help stakeholders identify the root cause of perceived problems before determining and implementing a communication solution.
5. Demonstrate how user advocacy promotes a culture of continuous improvement.
6. Create and consistently reference a representative user identity.
7. Discuss multiple user pathways and work processes.

8. Frame content and design questions in a scenario- or task-based manner.

A description of the workplace contexts in which we used these key approaches and, critically, how we used them follows.

Departmental content strategist I (Nick Carrington) teach professional writing courses at a small, private, Christian university in the Midwest. Our department offers four programs of study: Communication, Broadcasting and Digital Media, Journalism, and Professional Writing and Information Design. Although there are 15 full-time faculty members in the department, only two of us teach in the professional writing program. The faculty expressed a desire to use our skills to the benefit of all four areas of study in our program. There was one problem though: They were not even sure what we did. “Don’t you write procedures?” one colleague asked. “Well, yes. But we also write lots of other workplace content,” I often explained. And, I frequently left those conversations feeling like I had spoken some indecipherable language.

One semester, our new Chair put a greater emphasis on recruiting as enrollment had dropped. The university hired an outside marketing agency to increase university enrollment. Among other conclusions, they told us that program webpages are an important part of our recruiting process. We knew this from other published scholarship already, but it was nice to confirm it through data with our intended audiences (Esrock & Leighty, 2000; Hite & Railsback, 2010; McAllister & Taylor, 2007).

As a TC, even though I was typically just viewed as a “writing teacher” by others, I knew I had the skills to upgrade our site in a meaningful, UCD/UX-informed way. I initiated an individual meeting with my Chair to discuss a complete revision of our program’s recruiting pages. Importantly, I explained the UCD/UX process that I would use to do so. The depth of user data and analysis my UCD/UX process would yield was something that had never occurred to him: information about which content and design elements would help prospective students. It seemed to compel him to give me freedom and authority to do the work I wanted. He even hoped to use the data to improve other department initiatives.

For nine months, I worked with three students to study users (Garrett, 2011), to study the problem

context, and to produce a working prototype (Still & Crane, 2016). The redesign included adding visual elements for branding purposes and creating several new pages geared toward answering our user’s questions: a blog with posts written by current students about the program, alumni profiles, and a student portfolio page that displays their work. We also wrote new content for existing pages and created new pathways to link these to other valuable resources, like course descriptions in the University’s online catalog.

Three key practices that I used to promote user advocacy helped my project team, and subsequent department colleagues, understand the value of my UCD/UX-informed technical communication approach:

1. Help stakeholders understand the benefits of good user research processes and experiences: When I first explained my UCD/UX methods to non-TCs, I contrasted my proposed work with a similar project that recently failed. In a department meeting the previous spring, our Chair announced that the department had started a blog. When the faculty inquired as to why, he stated that other departments had successful blogs and as a Communication department, it “made sense” for us to have one too. It was a marketing effort geared toward external audiences, yet we had conducted zero user research and performed zero UCD/UX methods. Unsurprisingly, the blog quickly died after three posts.

When I explained my UCD/UX approach to determine what new content would go on the recruiting pages, I tactfully suggested that a lack of audience analysis and research likely led to the old blog’s failure: “We’ve only talked about implementing tactics, like the blog, without any idea as to what information our audience wants from us and how they’d like that presented.” I reiterated that UCD/UX methods would yield important information that would enable us to make effective decisions about content on the professional writing webpages. One question seemed to hit home: “We need to answer questions about purpose, topics, and a whole host of other content issues. How will we answer those without interacting with our users?”

When we launched the new recruiting pages, we did include a blog, but it was a successful one. I’ve made an effort to discuss why the new blog has thrived and the first one failed within my

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department. I pointed to one critical consideration: I did not start with the idea of a blog (Halvorson & Rach, 2012). That is, the blog was not a technological solution of choice simply because “other departments were doing it.” Rather, I learned through user research, observation, and testing (Garrett, 2011; Still & Crane, 2016) that prospective students desired to know what the experience was like in our program and that current students provided the best insight into that experience. This was not the case with the first blog where we had zero user information. From these conversations, our faculty grasped the importance of good user analysis and testing processes. Encouragingly, the faculty have started to consider how to implement user research approaches into other decision-making processes.

2. Connect user needs to organizational

goals: From an organizational goal perspective, the department wanted to increase students. The recruiting pages were a means to this end. In conversations with faculty and the marketing and Web department, I made it a point to ask questions about user advocacy. For example, I asked: “What concerns about professional writing do prospective students have that would cause them to choose another program?”, “What information and in what forms can we present that content in order to help them make a wise decision?”, and “What made us more attractive than the other programs? What did potential students need/want to know?”

I argued that answering questions and addressing fears that students had about our programs would result in the best content to attract more students. My diligence to explicitly promote user advocacy in interactions with non-TCs offered a clearer link between the prospective students’ content needs and the goals of the communication department; if students’ information needs were met, they would not choose other programs based on misconceptions about what our major offered.

3. Articulate how content and design

decisions align with known user characteristics,

needs, and wants: When I presented changes to the recruiting pages to the university Web and marketing department for approval, it was critical that I explained why my team made specific decisions; I grounded my arguments for each change in user advocacy. I reviewed our UCD/UX methods and connected user research data to each content and design decision. For

example, I was explicit about how specific user research findings indicated what prospective students wanted to know about the program. I presented a user question structure (Redish, 2012) to connect our content areas to user needs:

1. Information about jobs

- a. What job opportunities are there in the professional writing field?
- b. What is the program’s job placement rate?
- c. What can I do with the major when I graduate?
- d. Can I find a job with this major when I graduate?

2. Information about the student experience in the program

- a. How does the course schedule work (with other minors or study abroad opportunities)?
- b. What do you do in the program?
- c. Is knowing good grammar and spelling important?
- d. Is it a dry major (will I enjoy the coursework)?
- e. What type of classes will I be taking?
- f. How time consuming/hard is the program?

When I presented each prototype page, I pointed out which content and design elements met which of these user questions. For example, when I presented data that suggested prospective students want to understand what their experience would be like in the program (coursework, community, class size, co-curricular activities), I showed them the prototype of our student portfolio page. These portfolios present the work that our students create in coursework, through their internships, and by way of on-campus writing jobs. I tied this page back to some of the questions our users were asking such as “What do you do in the program”? This approach helped the Web and marketing departments understand how each content and design element was connected to user data. In turn, it was a persuasive approach because it clearly highlighted how our content would address real user needs. A marketing representative even commented that the university had other program pages that needed this kind of process and connection between content and data.

Overall, the key practices I used to promote user advocacy ultimately challenged previous notions or engendered new ways of thinking about the project

and our users. After the redesign, conversations about my work within the department changed. Other faculty members inquired about the UCD/UX approaches my team used. My favorite comment was eye opening: “I didn’t know you did this kind of stuff.” Department members had new insights into what technical communication work can contribute. My Chair formally recognized me in front of my colleagues, and the project played a part in a recent promotion I received.

Professionals in other fields have long dictated the value of a TC’s work (Rice-Bailey, 2016). Many times, non-TCs misunderstand the TC’s skillset. As such, TCs need to consistently find ways to create or shift their workplace identities. For me, the opportunity arose at a regular faculty meeting; I had the confidence to volunteer to lead a major UCD/UX technical communication project. While this was beyond my job description, I knew I could not idly let technology-centered design (i.e.: “we’re starting a blog”) trump the meaningful work that I, a TC, could do.

Workplace senior process writer My (Nancy Muncie’s) immersion into the corporate world began as a Senior Technical Writer in a Project Engineering department at a large aerospace company. After nearly two decades in education as an English teacher and writing specialist, I made a career change to industry in 2011. Recently, the Corporate Communications department of my employer contacted me about a “problem” with workforce email writing. Because I was the Senior Technical Writer and the group believed this to be a training issue—an opportunity to align my teaching background, writing instruction pedagogy, and technical communication skillset arose.

Tasked with designing a training module to “teach appropriate and professional email etiquette” to the workforce; I considered approaching the problem from a curriculum-by-design methodology (Wiggins & McTighe, 1998). However, as a TC embedded in the organization, I knew, and research supports (see Beer & Nohria, 2001; Kanter, 1983; Reingold & Yang, 2007; Stein, 2010), that perceived problems are a recipe for the knee-jerk “change something” reaction. Management’s quick call to implement a new training module was a prime example of this problem. Rather than develop an arbitrary set of training slides (the standard approach), I used a UCD/UX approach to ensure the training module design met the writing

and communication needs of the employees for whom it was intended. My UCD/UX project utilized research tools such as a project proposal, surveys, interviews, site visits, and prototype development (Still & Crane, 2016).

I achieved buy-in to my UCD/UX methods through key practices where I promoted user advocacy to reframe the cause of poor email writing. This, in turn, resulted in an awareness of and openness to user-provided solutions. Based on the advice of Barnum (2011), the point was to “focus on the user(s), not [on] the product” (p. 10) to achieve meaningful change for all stakeholders. I had to articulate the value of this approach to non-TCs who seemingly did not care about how I was going to produce the new training module. They were only interested in what I produced. To promote my UCD/UX approach, I framed my strategy in the language of project management.

Accordingly, I negotiated management away from their predetermined approach: to design training slides addressing unprofessional tone, incorrect grammar, spelling and punctuation errors, lack of contact information, disregard for chains-of-command, misuse of Reply All, and use of individual slogans and euphemisms. To secure buy-in for my UCD/UX approach, I presented a formal project proposal that outlined these methods in terms of resource allocation, Gantt charts, milestones, and objectives to improve the bottom-line by reducing the rework and inefficiency resulting from poorly written emails. Management agreed to my UCD/UX approach, and the project ended in a successful roll-out of the training. Two key practices made the difference in this project:

1. Help stakeholders identify the root cause of perceived problems before determining and implementing a solution: For this project, management felt strongly, despite having no data or first-hand knowledge, that the cause of the email problems was a lack of training. Accordingly, I grounded my inquiries in actual user impacts when discussing the project with management. Posing questions from a representative user perspective, I asked, for example, “How will Brenda from second shift benefit from this lunchtime training format?”, “Let’s think about John in Production. Is it fair to say he has better ways to spend his time than double-checking his spelling in an email?”

Critically, I linked these user considerations to common organizational concerns: “Does that have a

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safety implication?” “If John spends a little more time in proofreading, might this prevent a milestone slipping due to misunderstanding?” These conversations in turn helped change understandings of what needed to be taught, how it should be taught, and why a UCD/UX approach was the best solution.

Ultimately, I framed the need to focus on the users—the workforce—to develop the training as risk mitigation. I used my teaching experience and technical communication knowledge to advocate that expensive training initiatives designed without input from the users would likely fail. Fortunately, management trusted my judgment when I connected user considerations to the bottom line. I focused on my user analysis data during project updates with management. Site visits and user-testing (Garrett, 2011; Still & Crane, 2016), for example, revealed a very different root cause to the email problem than management perceived. Capturing the impacts of what user data showed were the real problems in terms of quantifiable time-off-task in comparison to noticed improvements post-training resulted in buy-in of my UCD/UX approach. It helped me persuade management of increased earned value and positive budget impacts that result from a training targeted to what user data shows is the root cause.

2. Demonstrate how user advocacy promotes a culture of continuous improvement: Through my work, I could demonstrate that UCD/UX methods ensures that both trainings and corresponding documents can minimize the time employees take to repeat instructions, demonstrate procedures, and explain routine work processes every time there is a new hire or restructuring.

In my work to help employees reap the benefits of user-centered documents, for example, I convinced a few subject matter experts (SMEs) to track the frequencies and types of questions they were asked about specific company documents and time needed to handle them. This tracking confirmed that new, user-centered documents reduced the time SMEs spent answering questions and training new hires by 63%. Accordingly, I could quantify the positive organizational impact of my technical communication work.

Conversations about the bottom-line impacts (easily quantified in terms of time-on-task vs. time supporting others) stemming from the workforce’s efforts to improve documentation got leadership’s attention. This resulted in my increased visibility

and influence as a TC—and more importantly—the value of technical communication work within the organization. Word has traveled about my UCD/UX technical communication approach, though non-TCs do not formally call it such. Rather, they understand that my technical communication work places their work, input, and professional interests at the center of the problem-solving approach. User considerations now inform their process improvement strategies. Overall, the key practices I used to promote user advocacy shifted my identity from being “an effective partner” (Rice-Bailey, 2016) to an essential one when solving problems at work.

My technical communication work, once considered “nice-to-have,” is now viewed as necessary. Leadership began seeing how a TC can improve bottom-line savings through standardized, transparent documentation, more productive meetings and trainings that are well-attended, and meaningful exchanges of information that do not require management attendance or oversight. I have also been asked to develop more training due to management’s endorsement of my technical communication approach. Now, I am viewed as a different and more influential asset than before. My interactions and negotiations with non-TCs during this project did not just result in a successful deliverable; they resulted in a greater appreciation of how I, a TC, am integral to researching and designing the right solutions for the right problems.

Strategic communication consultant My (Sarah Martin’s) reflection draws from a consulting role I held as the Assistant Director of Strategic Communication for a large government organization. I reported to the Director of Strategic Communication, also a consultant, and we represented the only TCs in the organization. The organization’s lack of experience with TCs was both a gift and a challenge.

As a gift, non-TCs had few preconceived notions about what we should do, and why or how we did it. As a challenge, non-TCs had few preconceived notions about what we should do, and why or how we did it. In other words, nobody seemed to care what the TCs were doing; they did not see how a TC directly added value to what they did. From their perspective, non-TCs managed the work processes and products of the organization; TCs managed the resulting derivative communication of these activities.

It was clear that overtly attempting to alter non-TC perceptions either about technical communication being “one of those soft skills” or the responsibility of “people who write manuals in China” (real statements from non-TCs in the organization) would not be fruitful. Luckily, something better happened. As my team worked on different communication initiatives—content strategy, document development, and website design—non-TCs began to see clear connections to how our technical communication work positively impacted employees and external stakeholders. They started to reframe technical communication from an afterthought exercise to fix, clarify, or transmit information (Slack, Miller, & Doak, 2004) to a means to better manage the organization itself (Longo, 2000).

For example, non-TCs credited our technical communication work with three primary achievements: decreases in policy inquiries from both employees and stakeholders, enhanced work practices due to more user-centered internal work documents, and an improved understanding about the organization’s mission from user-centered public documents.

The shift in the organization’s perception of technical communication work was, in part, I believe, due to specific key practices that I used to promote user advocacy during non-TC interactions. Promoting user advocacy in these three ways allowed me to successfully conduct technical communication work and foster support from non-TCs:

1. Create and consistently reference a representative user identity: A core UCD/UX practice is to develop a representative user identity that establishes a user’s needs, values, and behaviors (Barnum, 2011; Dumas & Redish, 1999; Krug, 2014; Rubin, Chisnell, & Spool, 2008; Still & Crane, 2016). This practice provides a system of checks and balances for content, feature, and process decisions; decisions are grounded in user benefits, rather than a TC’s or non-TC’s preferences as the user profile is consulted.

Cooper (2004) notes how referencing user profiles during design discussions can in turn lessen tensions among group members when making content and design decisions. It helps TCs tie their rationale for content and design decisions back to user needs. For example, if a TC suspects that content or a process may be confusing, he or she may simply inquire, “What if Sally accidentally clicked here?” or “What if Sally calls this term that instead?” This approach of referencing

a representative user identity detaches the issue from a TC misunderstanding or not “getting it” and recasts the issue to be resolved for the user’s benefit. One example of how I used this approach was during a contentious meeting with a SME about technical terminology in a congressional document meant for public access. I simply asked, “How would you explain that to your neighbor?” By referencing a particular user group, the general public framed as a neighbor, the SME better grasped the need to adapt the terminology for fear of the user missing the point of the paragraph. This approach positioned me as a user advocate rather than a bothersome “translator” (Slack, Miller, & Doak, 2004) there to make sense of technical terminology. Importantly, the SME noted that framing content in ways that non-experts could understand would help him with other workplace projects. He specifically told me that he was going to use this approach to prepare a report for an upcoming congressional meeting.

2. Discuss multiple user pathways and work processes: Regardless of who the representatives users are, TCs must also consider how users work. This means observing and analyzing user pathways and work processes (Barnum, 2011; Dumas & Redish, 1999; Krug, 2014; Rubin, Chisnell, & Spool, 2008; Still & Crane, 2016). In my discussions with SMEs or non-TC managers, I consistently talked about how someone might access certain content. So, instead of simply personally asking, “Which button do I click to find that?”, I asked a series of questions such as: “If Joe were on the Homepage, how would he locate that?”, “How many times must Joe click to find it?”, or “Can someone new or external to the organization locate this?” Framing these questions in ways that placed users, not myself, as the inquiring party kept potential accusations of “You’re not doing it right; engineers do it this way” at bay. If there was a problem accessing information, the non-TCs could tie it into something related to a specific user profile rather than me, the TC, simply not understanding their domain.

When possible, I worked with the SME to observe users directly. Having the SME in the room during this process kept the focus on the users and their work patterns; I was not a TC “mimicking” other’s work, which might result in a SME retort of, “Well that’s not how they do it anyway.” Having the SME present during user observations also led to rich discussions about the user’s work patterns. The SME was often

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surprised by how differently or with what difficulty or ease users accessed information. Discussing our findings about multiple user pathways and work processes together was very effective. In short, while I was not required to have the SME present, inviting him to user observation sessions yielded positive outcomes—both for the project and our TC/non-TC interactions.

3. Frame content and design questions in a scenario or task-based manner: Scenario or task-based user observations are a core UCD/UX practice (Barnum, 2011; Dumas & Redish, 1999; Garrett, 2011; Krug, 2014; Rubin, Chisnell, & Spool, 2008; Norman, 2013; Still & Crane, 2016). As such, I always provided a specific scenario or use-context when I presented my work to non-TCs. For example, I explained the conditions and process by which a regional manager, headquarters employee, congressional representative, and customer might access and use the same information differently under various circumstances. By discussing multiple user tasks and scenarios, the management team saw a greater need to consider how employees and stakeholders accessed information differently and for which purposes. They were motivated to provide information that met different user needs and was easily accessible to employees so they could properly conduct their work.

Importantly, framing my content and design recommendations in a scenario or task-based manner helped articulate how user needs impacted broader organizational processes and outcomes. By promoting user advocacy, management became aware of how a particular set of policy content impacted internal and external stakeholders differently. The same content, with different use and access challenges, created tension between internal and external stakeholders. Internal stakeholders were frustrated that external stakeholders were not providing correct information. External stakeholders were frustrated that the organization seemed indifferent about getting them accurate information to correctly do their work. The result of this tension was a formal congressional inquiry and government review of the organization's work, which impacted morale and their broader organizational processes and achievements.

To address this content issue with management, I framed my problem-solving approach in user advocacy. Management was very receptive to questions such as: "What are the different circumstances where people

might use this information?", "Why will certain people access this information?", "What will they use it for?", and "How will they access it?" Managers were eager to share their personal knowledge about these scenario or task-based questions. Once they reflected on different use contexts, it sparked lively conversations and many managers jumped in to share their experiences; it also helped them think through situations—seemingly obvious ones—that they hadn't even considered before. The scenario or task-based questions were a departure from general and transactive planning questions such as: "Who will revise this document?", "How long will it take?", and "Who will notify people that the document is revised?"

Overall, the key practices I used to promote user advocacy lessened tensions and built rapport and mutual respect among our two-person technical communication team, management, and SMEs. Importantly, promoting user advocacy took the attention off me as the TC trying to understand their sacred technical knowledge. Rather, it positioned me as an advocate for both users and management. Non-TCs saw that my questions and methods were always grounded in helping someone other than myself understand their technical knowledge. In turn, non-TCs also saw me as advocating for them because I actively mined more than their technical expertise: I treated them as user-experts and probed their knowledge of user values and behaviors. They became most animated when I engaged in conversations about scenario or task-based behaviors—it represented their technical knowledge at work, after all.

Promoting user advocacy when I explained my work helped demonstrate how technical communication work practices result in organizational value (Dubinsky, 2004; Halvorson & Rach, 2012; Johnson-Eilola, 2004). Perceptions of my work shifted. It was not about me as a TC doing work for an organization; it was about what a TC could do for the organization. This was possible through the three key practices described above.

Promoting User Advocacy to Shift Technical Communication Identity

While it can be bothersome when non-TCs are unsure about what we do, it is also opportune. We, as TCs, have the opportunity to reimagine and articulate what

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TCs are capable of through our workplace interactions. In our situations, promoting user advocacy through eight key practices helped us do so. These practices offered rationales to defend the content, design, and process decisions that govern our technical communication work. In turn, these practices helped alter pedestrian understandings of TCs as simply people who “fix” or “add to” existing work products.

Table 1 summarizes the key practices and associated application strategies that we used to promote user advocacy.

Our reflections suggest TCs must not rely solely on what they do to prove their value. Their value also depends on how they communicate their work to non-TCs and situate that work within larger organizational contexts. If we expect our work to “speak for itself,”

Table 1. Key Practices and strategic application to promote user advocacy

Key Practice	
Strategic Application	Prompting Questions/Statements
1. Help stakeholders understand the benefits of good user research processes and experiences.	
<ul style="list-style-type: none"> Look for opportunities to lead unconventional technical communication projects; demonstrate how they are a technical communication issue. Explain the UCD/UX problem-solving approach you will use with management rather than solely present recommendations. 	<ul style="list-style-type: none"> “Because of the UX/UCD process I intend to use, I believe we will achieve better results than past attempts to accomplish similar goals.” “I believe my skills in user advocacy will be an asset to the organization on this new project.”
2. Connect user needs to organizational goals.	
<ul style="list-style-type: none"> Ask other stakeholders questions that will connect user advocacy to measurable objectives, such as increased student enrollment or a rise in newsletter subscriptions. Articulate the connections between user testing results and conclusions with clear benefits to the organization. 	<ul style="list-style-type: none"> “What information helps a prospective student decide on a major?” “Because of our user tests and training, users suggested they have a better understanding of the company’s writing expectations, and they can more effectively communicate with internal and external stakeholders.”
3. Articulate how content and design decisions directly align with known user characteristics, needs, and wants.	
<ul style="list-style-type: none"> Explicitly connect product features or recommendations to strategy formed through user testing. When you make a specific recommendation, explain which user need it addresses. 	<ul style="list-style-type: none"> “Prospective students want to know what their coursework will look like. To address this, we created a student portfolio page that showed current students classroom work.” “We wanted to effectively communicate the special community within our program, so we have current students writing blog posts about that topic.”
4. Help stakeholders identify the root cause of perceived problems before determining and implementing a communication solution.	
<ul style="list-style-type: none"> Explain the conditions and processes by which various users will access and use different information. Before embarking on a solution, discuss the problem with other stakeholders in terms of user impacts. Tie user information to organizational concerns, such as safety measures or financial goals. 	<ul style="list-style-type: none"> “How will Brenda from second shift benefit from this lunchtime training format?” “Let’s think about John in Production. Is it fair to say he has better ways to spend his time than double-checking his spelling in an email?” “By figuring out and addressing the root of the problem through UX/UCD methods, we can help our employees work more efficiently.”

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Key Practice	
Strategic Application	Prompting Questions/Statements
5. Demonstrate how user advocacy promotes a culture of continuous improvement.	
<ul style="list-style-type: none"> Use quantifiable data to connect technical communication work to the organization's bottom line. Invite stakeholder groups to measure and reflect on how specific communication changes impact their work; use this information to make iterative enhancements. 	<ul style="list-style-type: none"> "We can use metrics like time-on-task data to show how workers are remaining effective while being more efficient." "If we continually collect user data, we can make appropriate changes more often to improve our productivity and effectiveness."
6. Create and consistently reference a representative user identity.	
<ul style="list-style-type: none"> Present user profiles to stakeholders so they are familiar with the user group you are trying to help. Reference user profiles when explaining or recommending design decisions. 	<ul style="list-style-type: none"> "How would you explain that to a public customer?" "How would a government representative handle the same information?"
7. Discuss multiple user pathways and work processes.	
<ul style="list-style-type: none"> When discussing project decisions with SMEs, frame questions in ways that place users as the inquiring party. Invite SMEs and other stakeholders to observe user testing and discuss findings directly with them. 	<ul style="list-style-type: none"> "If Joe were on the homepage, how would he locate that?" "We could use your expertise in watching and analyzing our user testing."
8. Frame content and design questions in a scenario- or task-based manner.	
<ul style="list-style-type: none"> Provide specific scenarios of use contexts that give stakeholders a clearer picture of the larger situation. Ask questions about how different users might interact with a feature or piece of content under different circumstances. 	<ul style="list-style-type: none"> "If Chris needed to access this information via her mobile phone, what menu item should she look for?" "What about if she (Chris) needed to edit the information and encrypt it before sending it to a client?"

we run the risk of non-TCs continuing to devalue and misunderstand our contributions and cast us into support roles (Johnson-Eilola, 2004; Slack, Miller, & Doak, 2004). While individual TCs may communicate the value of their work differently, the practices described in this article offer perspectives to those struggling to make their value known to their non-TC colleagues.

This study contributes to scholarship on and can help TCs think about new ways to promote their identity and value (Baehr, 2015; Bloch, 2011; Brady & Schreiber, 2013; Dannels, 2000; Redish, 2003; Rice-Bailey, 2016; Savage, 2003; St. Amant & Meloncon, 2016; Walton, 2013; Wilson & Ford, 2003). For example, TCs may often spend their persuasive energies touting the benefits of various principles: clear language, omission of technical jargon, proper information design, or appropriate content strategy. While these approaches may sometimes work, they are not always clearly linked to user advocacy. That

is, stating that "information design tells us not to use white text on a blue background" is different from presenting user testing results that show zero users could read an important paragraph.

Our reflections can also help TCs become more comfortable explaining their work. As Rice-Bailey (2016) notes:

Being asked to describe their roles and competencies can leave the TC with feelings of uncertainty and anxiety. Frequently, the term *technical communicator* is not well understood in the workplace, and it is difficult for many TCs to fully expound upon their roles and the competencies they bring to the workplace. (p. 231)

While other scholars have explored the challenges TCs have in articulating their work and value (Anschultz & Rosenberg, 2002; Bias & Mayhew, 2005; Dicks, 2010; Faber & Johnson-Eilola, 2003; Redish, 2003; Savage, 2003), we suggest that grounding technical communication approaches and decisions in

user advocacy relieves some of these pressures. These key practices can help TCs who might feel like they consistently must find the “right” way to “explain” or “convince” (Brady & Schreiber, 2013) others that their work adds value.

Additionally, this study addresses practitioner concerns that technical communication theories and principles be communicated in non-academic terminology. As one example, a TC in St. Amant and Meloncon's (2016) study remarked that, “Research must be reported in terms that practitioners, not familiar with the esoterica of the academic field, can nonetheless glean useful principles and guidelines” (sec. 3, para. 14). Our reflections demonstrate how TCs can promote user advocacy in plain terms: what, when, where, why, and how will user X do Y or Z?

Lastly, this study suggests ways for TCs to have more positive interactions with non-TCs. Positive interactions between TCs and SMEs matter greatly. As Rice-Bailey (2016) notes:

When TCs and SMEs are seen as effective partners, there is an increased likelihood that TCs will be regarded as valuable team members and will be increasingly called upon to assist with project work, thus raising the overall station of TCs within the organization. (p. 230)

In reflecting on her corporate technical communication work, Rice-Bailey (2016) also notes that SMEs, or non-TCs, determined the “ease or difficulty” (p. 230) with which she could complete her work. In this way, a TC's relationship to non-TCs can be both enabling and constraining. We suggest that the eight key practices to promote user advocacy presented here have much to do with reaching an enabling relationship.

Conclusion

The eight key practices we used to promote user advocacy resulted in three critical outcomes: 1) new understandings of technical communication work, 2) clearer links between our work and broader organizational value, and 3) more positive professional identities. We improved our workplace identities and value not solely because we did our jobs well. It was, we believe, because we effectively communicated how our problem-solving approach impacts users. Critically, promoting user advocacy brought us into larger and

broader management conversations and activities well beyond our standard job descriptions (Hart & Conklin, 2006; Rice-Bailey, 2016). Using these eight key practices helped us raise the visibility and value of our technical communication work (Brady & Schreiber, 2013; Rice-Bailey, 2016).

Part of understanding the TC's identity is to explore his or her role and value as perceived by both the TC and those with whom the TC interacts. Slack (2004) suggests we tell stories about our individual contexts. The purpose of these stories (including ours) has less to do with defining what TCs ought to be. In these stories, we describe what methods and processes help individual TCs create a positive identity and enhance their workplace influence. While our study offers three ethnographic perspectives, it is limited, as is all experience, by our own perceptions and workplace cultural knowledge. From a social constructionist perspective, our study is based on our individual attempts to account from our own experiences (Gergen, 1985; 1999) of how to promote user advocacy when conducting technical communication work. Additionally, our perceptions about how non-TCs more positively viewed us and our work were not quantitatively measured. They were based on observed behavioral implications and personal experience: public recognition, promotions, requests for additional work and work on broader organizational problems, and adoption of UCD/UX approaches or data to inform non-technical communication problems.

Future studies might formally measure how certain attributes, professionalization, for example, impact perceptions of TCs. Professionalization—the process by which worker groups achieve professional status (Evetts, 2013)—broadens understandings of particular workers' professionalism. For example, historically female-dominated occupational groups, such as midwifery, have benefitted from professionalization (Bourgeault, Benoit, & Davis-Floyd, 2004). Yet, professionalization is not terminal; it is dynamic. Formal (or perceived) loss of control, or “jurisdiction” (Abbott, 2014), over technical expertise or responsibilities associated with power can result in de-professionalization. For example, Andrews and Wærness (2011) found that public health nurses experienced de-professionalization as their roles became more circumscribed by higher authorities. In turn, their community influence waned as their duties became less influential and respectable. More so, Evetts

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(2013) explains how professionalism, particularly its ideology, has power:

The *ideology* of professionalism that is so appealing to occupational groups and their practitioners includes aspects such as exclusive ownership of an area of expertise and knowledge, and the power to define the nature of problems in that area as well as the control of access to potential solutions. It also includes an image of collegial work relations of mutual assistance and support rather than hierarchical, competitive or managerialist control. (p. 788)

Accordingly, technical communication scholarship can benefit from future studies that measure how TCs (and non-TCs) perceive, for example, a TC's power in defining the nature of current work problems or his or her access to solutions and resources.

As professional practices and occupations change (Abbott, 2014; Drucker, 1992, 1969; Evetts, 2013, 2003), it's important to consider the structural, economic, and demographic forces that influence these changes (Abbott, 2014). Accordingly, it would also be useful to explore how TCs create shared professional values as new technologies and work patterns take shape. As Abbott (2014) notes, professional jurisdictions are "determined by both [workers'] own activity defining the jurisdiction and by the social and cultural context within which they work" (p. 217). As far as defining professional jurisdictions, shared professional values—common experiences, expertise, and problem-solving approaches—can strengthen the construction and perception of professional identities and workplace value (Boussard, 2008; Dubar & Tripier, 1998; Evetts, 2013). As such, technical communication scholarship can benefit from more formal studies of professionalization in shifting workplace contexts.

We hope this study and future similar studies motivate TCs to adopt these key practices or promote user advocacy in new ways. As Rice-Bailey (2016) warns:

If TCs do not or cannot articulate their value, there is a likelihood they will be seen as a nuisance to the SMEs, unnecessary to the product development and implementation process, or simply expendable "overhead" to the department and organization. (p. 240)

TCs should view every workplace interaction where they do not explicitly promote user advocacy as "lost opportunities...to prove their value and be seen as leaders in organizations" (Rice-Bailey, 2016, p. 241).

As such, our primary conclusion is this: A TC's value is reciprocal to his or her explicit promotion of user advocacy. This study offers eight key practices to help TCs achieve just that.

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Managing and Publishing Technical Data at FLIR: A Description of Two System Generations

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Abstract

Purpose: This study describes the specification, development, procurement, and implementation of two systems for managing business-critical technical data for a large multinational company.

Method: This study uses a descriptive analytical method, based on available project data, interviews, and fault analyses.

Results: The results of this research outline the technical, strategic, and organizational aspects that are associated with the development and procurement of two business-critical systems managing large publishing volumes, a variety of formats, and fast deployment of outputs.

Conclusion: A system and function analysis of all products was critical for success; a high degree of terminological quality was of paramount importance; consistent writing and typesetting rules were required to maximize 100% repetitions in the localization workflow; and a strong content management system (CMS) infrastructure was a defining factor for the second procurement and implementation.

Keywords: XML (EXtensible Markup Language), technical data, procurement, implementation, content management system

Practitioner's Takeaway:

- Considerable resources need to be spent on functional and linguistic product analyses to create and optimize the content data model. This step is crucial.
- Product relationships, hierarchies, dependencies, and release management functions relating to the Enterprise Resource Planning (ERP) system are preferably handled by a relational database while letting the CMS handle technical data content for integration into standard publishing and localization workflows.
- Adopting task-based reporting frameworks and high-volume formatting engines opens up vast possibilities for tailoring the output to various recipients and stakeholders.

Managing and Publishing Technical Data

This case study describes a large multinational manufacturing company's processes and tool chains for the management and publication of critical technical data, i.e., specifications of thermal cameras and their associated accessories. The article provides information about the analysis of the business and technical needs, development and implementation of the two systems (an internally developed database and a commercially developed module to an existing XML-based system for product information), and their formatting and publishing strategies.

Introduction

FLIR Systems, Inc. (NASDAQ: FLIR) was established in 1978 and is headquartered in Wilsonville, Oregon, USA. With manufacturing and R&D facilities in the US, Europe, and Middle East, it is a world leader in the design, manufacturing, and marketing of sensor systems that enhance perception and awareness. Pioneers in the private and public infrared industries, FLIR provides advanced thermal imaging and threat-detection systems for use by industry, consumers, science, law enforcement, and the military for a wide range of imaging, thermography, and security applications.

The acquisition of Agema (Sweden) in 1998 and of Inframetrics (Boston, USA) in mid-1999 provided FLIR engineering teams and sales and support infrastructure that accelerated FLIR's success in commercial thermal imaging markets.

I was employed at FLIR Systems' Swedish site, formerly Agema, in 1999 to manage the production of end-user documentation for infrared cameras and image-analysis programs, as well as the procurement and coordination of translations. At that time, the product portfolio was limited and production volumes were relatively small.

FLIR's revenue in 2002 was 261 million USD. Since then, the company has expanded greatly, both through a large number of acquisitions of other companies in related industries (16 acquisitions since 2007) and through the strategic identification of new applications, customer groups, and industrial segments. For 2016, the revenue was 1.66 billion USD.

Technical background

Since 2002, all client documentation within the Swedish part of the Instruments division has been

created and maintained in XML-based documentation systems. Adopting XML as a best practice was a direct consequence of the ever-increasing volume of documentation and localization that was, and still is, the global responsibility of the Swedish site for their products.

The first system, which was specifically procured for the Swedish site, was in operation between 2002 and 2012 (Broberg, 2004), whereas the second system was commissioned in 2010 and is now used at several geographical sites and business units within the FLIR group (Broberg, 2016).

Up until 2006, technical data for the products were maintained as part of the user documentation and within the documentation system in which it was created. With the limited product portfolio that existed at the time, this was a solution that worked—the volume of technical data was not particularly extensive, so it could be managed in the established documentation workflow in a professional manner.

Toward the end of 2006, we made the decision to separate the work of creating and maintaining technical data from the standard documentation work. This decision was based on the fact that the products being created were becoming more and more complex and, consequently, the data were becoming more and more time-consuming to maintain in the documentation workflow that was being used for user documentation. Another significant fact was that the volume and type of technical data that would be created, documented, and maintained for new generations of products required an entirely new approach. For an optimum data structure we could use across the product range and throughout the product life cycle, we wanted to create a new content data model. We also wanted to find a cost-effective solution and efficient formatting workflows.

The task of creating a new content data model was large and was carried out by one of the company's former software managers. This work involved things like:

- System and function analysis of all products in the existing product portfolio, with benchmarking against products of other FLIR divisions
- Concept analysis of existing language usage and terminological alignment of expressions
- Definition of orthographic and typographic guidelines
- Relationship analysis of products in order to identify technical compatibility

- Documentation of processes and methods to ensure repeatability

Based on the new content data model, the library of technical data was built in Microsoft Excel, which offered the powerful formula and filter functionality. As one person assembled the technical data, a very high level of data quality could also be maintained. Data were regularly imported from Microsoft Excel to SalesWeb/PPS (Price Preparation System)—a pre-existing internal database for release, article, and pricing management that was developed in-house by FLIR. With further development of SalesWeb/PPS, Microsoft Excel was abandoned as a data source in 2008, and creation and maintenance of technical data could thereafter be carried out entirely in SalesWeb/PPS. The number of data points during this transition was approximately 15,000 and, two years later, it had grown to approximately 100,000.

Between 2006 and 2010, technical data were exported from SalesWeb/PPS as article number files in XML, in accordance with the DTD (Document Type Definition) that was used in the documentation system (flex.dtd). These files were then integrated into corresponding documentation in the documentation system and published as part of the PDFs (Portable Document Format).

Development of the First Technical Data System

During 2008, intense discussions took place about how we could find a successful technical solution for publishing technical data in several different formats for sales teams, distributors, and end clients. A critical point in these discussions was speed, as we wanted the option of being able to correct any possible errors in our technical data at short notice and to be able to republish updated data sheets on our client support site as quickly as possible. Another issue was related to various options for other departments and sites within the group being able to reuse our technical data in different ways (e.g., in marketing material and quotations). We also wanted to look into the possibilities of creating a product catalog of our products and accessories, which could be automatically kept up to date at the same pace as the individual data sheets.

Toward the end of 2008, we invited a number of Swedish and foreign companies to quote their systems to us in order to study in more detail what options they were able to offer for the challenges we were facing. The difference between the various solutions was fairly large, with regard to both functionality and price. Some solutions were more oriented toward maintaining spare parts structures for the automotive and other heavy industries, whereas others either stood out as special development projects for FLIR or as complete and highly suitable products. At this stage, no decisions were made to move forward with any of the systems on offer. Certainly, most offered a significantly more powerful framework than the one we had (e.g., with regard to speed and number of outputs), but none of them offered the dynamic advantages and toolbox of functions that had been developed in Sales Web/PPS between 2006 and 2008.

At this point, we began, instead, to take a closer look at the various formatting engines that were available on the market and had been around for a while. These were and are used for formatting in, for example, the following industrial segments:

- Aerospace and defense
- Heavy industries
- Standards and regulatory
- Yellow Pages/White Pages directories
- Legal and legislative

The advantages of these types of formatting engines are that they are used to format large volumes of data at a high speed and with great reliability. Constant formatting 24 hours a day, 7 days a week, 365 days a year is not unusual in these contexts and within these segments. In that respect, the engines are well tested and usually very stable in their technical processes and functions. Our technical analysis indicated that this type of formatting engine could work well for our needs. There were a number of different formatting engines on the market at that time that could have been suitable, such as the following commercial solutions:

- XEP from RenderX (which was already integrated as a formatting module in our documentation system)
- AH Formatter from AntennaHouse
- OASYS from Miles 33
- XPP from XyVision (now SDL XPP)
- Arbortext 3B2 from Arbortext (now PTC APP)

Managing and Publishing Technical Data

- DSSSLprint and NextPublisher from Next Solution
- TopLeaf XML Publisher from Turn-Key Systems
- DL Pager/DL Composer from Datalogics
- Life*TYPE from Corena
- Miramo from DataZone
- Patternstream from Finite Matters

There were also a number of open-source solutions that could have been interesting, including FOP from Apache Software Foundation. We also looked into the options of using various text processors (e.g., TeX/LaTeX, troff/groff, or lout) as the back end in an XML workflow.

In addition to these engines, we also looked more closely at various types of on-demand solutions, where formatting to PDF is done in run time when a client, for example, clicks on a link for a certain technical data sheet.

After a technical review and cost-benefit analysis of a number of engines, we eventually decided to bring in TopLeaf XML Publisher from the Australian company Turn-Key Systems (<http://www.turnkey.com.au>). Turn-Key Systems is a small software company with four employees based in Sydney and has been developing software for formatting purposes since 1971. During the 1970s and 1980s, the company was one of the global industry leaders for the automatic formatting of Yellow Pages and Whites Pages directories, and their software was used to typeset 50% of Australia's phone directories for a period of 20 years. At the time of our purchase decision, in the spring of 2010, their TopLeaf product was relatively unknown to a wider audience in Europe and the USA, and during the development and commissioning of our formatting framework, it would emerge that the product was a very stable, fast, and reliable formatting engine for a competitive price. When it comes to technical functions and options, it stands up quite well against other formatting engines that cost several times as much.

TopLeaf has an intuitive graphical interface for building up grid-based layouts and mapping various elements of input data workflow with the character and paragraph styles created in the program. Elements can also be mapped to different blocks in the layout that

are developing. PDFs from external sources can also be included in the formatting chain, which was used to a great extent when it came to the mechanical drawings from our CAD (Computer-Aided Design) systems.

For our own needs, we developed eight different style sheets in total for PDFs—two for product catalogs in A4 and US Letter, and five for separate data sheets in A4 and US Letter page sizes, the latter with different types of regionalized information (e.g., contact details of local sales offices).

A detailed description of TopLeaf is outside the scope of this article, and readers wanting to know more are referred instead to the documentation that accompanies the evaluation version of the software. Figure 1 displays an example of what the user interface looks like.

The technical workflow that we built up with SalesWeb/PPS and TopLeaf and which was in operation between the autumn of 2010 and the summer of 2014 was as follows, where all of the stages were completely automated and ran every night:

1. Exporting of technical data from SalesWeb/PPS as XML files (DocBook 4.5) to a specific server.
2. Copying the XML files to a formatting server.
3. Running a number of batch scripts in order to create the formatting script that would control TopLeaf's formatting for data sheets and product catalogs.
4. Beginning formatting. Data sheets were formatted in two-pass formatting and the product catalogs in three-pass formatting.¹
5. Feedback reporting of the processes via log files.
6. Running a number of batch scripts in order to optimize the PDF files in different ways (e.g., setting certain attributes and downsampling of images).
7. Copying the PDF files to SalesWeb/PPS.
8. Deleting the formatting server's XML and PDF files.
9. Starting up an FTP (File Transfer Protocol) client for uploading catalogs and data sheets to FLIR's external support site.
10. Feedback reporting of the processes via log files.

In critical cases where a correction of technical data must be published externally or internally faster than

¹ When using formatting engines that generate external table of contents or index files that will be re-read by the formatting engine for inclusion in the formatting stream, two or three formatting passes are necessary to resolve pagination and cross-references. This is due to the fact that the engine cannot estimate how many pages the table of contents or index will need and, therefore, can neither resolve the cross-references using only one formatting pass.

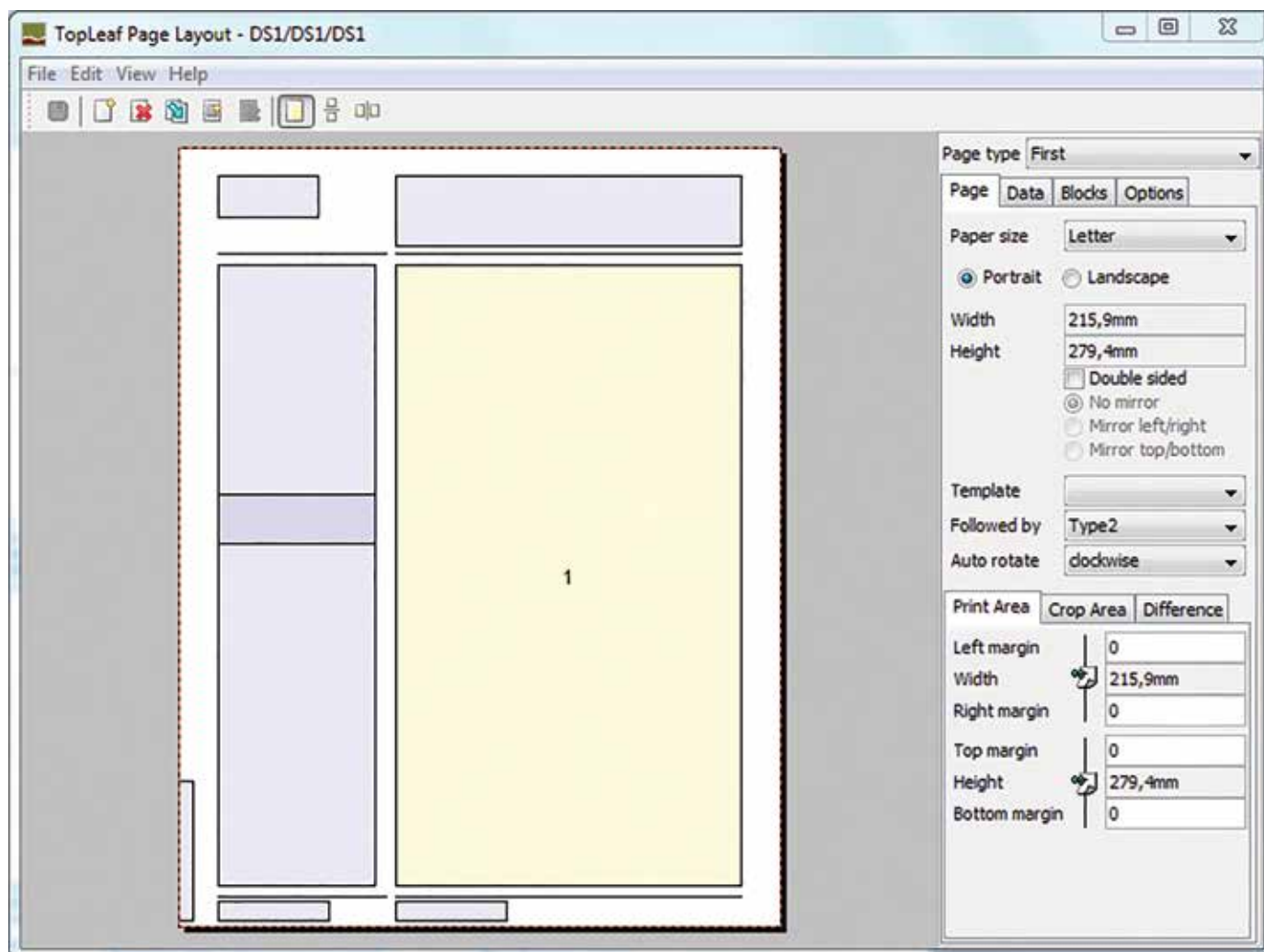


Figure 1. The page layout dialog in TopLeaf, where the grid-based layouts are created

within 24 hours—which was the standard formatting periodicity—this production chain could be initiated manually, which cut the time from correction in SalesWeb/PPS to an updated specification on our client support site to 5–10 minutes.

As mentioned previously, TopLeaf is a stable formatting engine. During the four years that this engine was in operation in the first technical data system, it formatted approximately 10 million PDF pages a year and was as stable when formatting a large number of individual data sheets (with a scope of 5–30 pages each) as when formatting the extensive product catalogs (with a scope of 3000–4000 pages each).

In recent years, TopLeaf has received a great deal of exposure on the European and American markets. Today, it is available as a plugin for common editing

tools, like Oxygen Author and Editor from Syncro Soft and XMetal from Just Systems, which provide users who are unfamiliar with XSLT (EXtensible Stylesheet Language Transformation) programming the opportunity to develop complex templates and formatting workflows.

Development of the Second Technical Data System

As mentioned, we initially procured a new XML-based documentation system in 2009, and we began to put it into operation in the Swedish part of ITC (Infrared Training Center, a business unit within FLIR) and GSS (Governmental Systems Sweden, a division that develops fixed surveillance systems,

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vehicle vision systems, and thermal weapons sights) in 2010 and 2011, respectively.

In 2012, this system also replaced the previous system (used since 2002) for the production of user documentation within the Instruments division, and this provided an opportunity to evaluate the options available for extending the new system in order to also be able to maintain and publish technical data.

Despite SalesWeb/PPS originally not having been developed to function as a data source for technical data, the solution had worked well for 4 years. There were, however, a number of aspects that were problematic and that had to be resolved if we were to be well equipped for future challenges.

We identified the following main disadvantages:

- No machine-powered version management: Version numbers were entered manually and version assurance, therefore, became individual-bound rather than machine-defined.
- No capacity for version comparisons: As SalesWeb/PPS only kept the latest version of technical data, two historic versions of technical product data could not be compared.
- No mandatory editing history: As the system lacked a commit concept, the relevant writer had to manually enter a description of the changes into an administration form and specify which version had been changed.
- No infrastructure for the translation workflow: SalesWeb/PPS was primarily a release, article, and pricing management system and not originally built in the necessary way should the translation of technical data be required.

Another problem was related to the workflow of technical data, as the system solution with SalesWeb/PPS and TopLeaf had, over time, been developed into a formatting workflow that ran parallel to the formatting workflow for the user documentation, rather than the two of them being parallel and integrated. This was seen as problematic and was one of the things we wanted to improve. Our ambition was to be able to publish the technical data both as separate publications per product and as chapters in the user documentation, and that special formatting conditions could automatically be implemented depending on the prevailing context. We also wanted the option of working with XML markup in the technical data (e.g.,

for variables, modularizing, and rendering), which the existing solution could not offer.

There were also several weighty benefits to using SalesWeb/PPS, for example:

- Link to FLIR's ERP system
- Release management of articles
- Relational connection between articles (i.e., technical compatibility)

After an evaluation of the pros and cons of SalesWeb/PPS as a technical data source, we decided that it would be the wrong route to take to further develop the system to meet the new demands we had to set. At the same time, we wanted to take advantage of the powerful release management functions and the relational database, which we did not feel would be necessary to replicate in a new system for technical data. When it came to the formatting framework, we could also see a number of improvement opportunities, as we would want to publish to significantly more output formats in the future than we had done previously (e.g., Microsoft Word and Microsoft Excel) as well as complete HTML (HyperText Markup Language) and XML packages for our distributors' websites.

We decided to separate the function and production responsibilities between SalesWeb/PPS and the documentation system that had been put into operation within the Instrument division and retained the following elements of SalesWeb/PPS:

- Technical release management of articles internally and externally—and thereby release management of output data from the documentation system
- Portal structure with product links to output data from the documentation system
- Generation of relational article lists in XML as input data to the documentation system's formatting framework (technical compatibility between products)
- Certain optical data as input data to FLIR's online FOV (Field of View) calculator

A brief technical overview of the documentation system is given here before the specially developed module for technical data is described in detail.

Simonsoft (<http://www.simonsoft.se>), a Gothenburg-based company with 10 employees, is a wholly-owned subsidiary of the PDS Vision Group (<http://www.pdsvision.com>). It supplies products and

services in the PLM field, mainly from the American company PTC (<http://www.ptc.com>). The company was founded by a number of people who broke away from PTC in connection with the acquisition of Arbortext in 2005 and has since been the sole distributor of the products on the northern European market. Today, the company also has a presence in England and Germany, as well as retailers in Canada. Simonsoft also offers solutions with varying levels of integration, based on PTC products, and it was one of these that was submitted in the tender to FLIR in 2007.

This system covers a number of well-known and tried-and-tested modules and software that are integrated and packaged into a comprehensive solution to create and maintain technical information throughout its life cycle.

This system is based on the following modules and software:

- The editing tool Arbortext Editor from PTC. This editing tool for SGML (Standard Generalized Markup Language) and XML was introduced in 1991 under the name of Adept Editor by Arbortext in Ann Arbor, Michigan, USA, and is one of the most widespread and widely used editing tools. Arbortext was acquired by PTC in 2005.
- The Simonsoft CMS version-management system, based on Subversion from Apache Software Foundation. Subversion, an open-source program for version management, was released in 2000 and has several hundred thousand installations globally. Simonsoft CMS also contains a Web interface for Subversion and has been designed to cater to a fully Web-based management and overview of all files in the version-management system.
- The Advanced Print Publisher formatting engine from PTC. This formatting engine, one of the most advanced engines on the market, was previously known as Advent 3B2 and was developed originally by Advent Publishing Systems in England. The company was acquired by Arbortext in 2004.
- Arbortext Styler from PTC. Arbortext Styler is an advanced tool for developing and maintaining style sheets for FOSI (Formatting Output Specification Instance), XSLT, and the proprietary style-sheet language for the Advanced Print Publisher formatting engine.

Simonsoft's solution is fully cloud-based and can be accessed over an <https://> connection from

any geographic location and computer, provided the computer has the necessary security certificates installed.

Simonsoft Batch Publishing

The module that was developed for us to manage technical data is called Simonsoft Batch Publishing and is an add-on service to Simonsoft CMS with which you create formatting jobs that are scheduled or are started manually.

Simonsoft Batch Publishing uses the Simonsoft CMS reporting framework to which you can send various requests that provide input about what is to be published. This means you can, for example, schedule a formatting job that every evening asks the Simonsoft CMS what has been updated by a certain type of document.

The reporting framework can provide specific information from the Simonsoft CMS. This includes which documents another document is used in or extracting documents which have been released but do not have translations. In addition to using it for batch formatting, the reporting framework is also used to create reports that can, for example, give the administrators or authors a better insight into their documentation work.

The results of formatting can be reprocessed if necessary, for example, by running XSLT transformations or by converting the results to yet another format (e.g., *.csv to *.xls). Usually, graphics and other files are repackaged into zipped packages or the results are forwarded to a Web server or other type of recipient.

Formatting jobs are scheduled via a Cron-like syntax, which enables advanced schedules to be created. As well as scheduling a time, date, weekday, etc., you can create dependencies between formatting jobs. When one job is complete, another or several other formatting jobs can begin. You can even send parameters between them, for example, to add a dynamic input value to a subsequent job.

You can also instruct Simonsoft Batch Publishing to initiate formatting jobs via a third party.

The actual formatting jobs can be configured to basically carry out any kind of manoeuvre necessary—everything from requesting a report from the Simonsoft CMS and publishing with the Arbortext Publishing Engine, to moving, unzipping, zipping, deleting, or running XSLT transformations on the formatted result.

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Architecturally, Simonsoft Batch Publishing is an independent server, which in turn communicates with the Simonsoft CMS, also an independent server, and the formatting server (in this case an Arbortext Publishing Engine). A formatting task uses the reporting framework and publishes the results of one or more report requests to the Simonsoft CMS with the help of the Arbortext Publishing Engine. The task manages the results from the Arbortext Publishing Engine, and when the reprocessing is complete, the formatting task is also complete.

All formatting tasks are logged, which means that if anything goes wrong, you can subsequently troubleshoot and almost immediately locate where the error began. In the event of formatting errors, an email can also be sent to appropriate recipients.

Simonsoft Batch Publishing currently carries out an analysis of necessary formatting needs every night. This analysis determines which technical data have been updated and which other documents contain these data. Formatting is then carried out, when it comes to separate data sheets, in the following formats:

- PDF, A4 (see Figure 2)
- PDF, US Letter
- Microsoft Word
- Microsoft Excel
- XML
- XML as complete package with images (*.zip)
- HTML
- HTML as complete package with images (*.zip)

Depending on whether technical data have been updated, 78 product catalogs—ranging from approx. 200 to 3,500 pages—are also automatically published, usually every night (see Figure 3). For this task, TopLeaf was kept as a stand-alone formatting engine and works parallel and external to the Simonsoft Batch Publishing workflow.

The results of the formatting job are then moved to a secure FTP site, from which the files are downloaded to an internal server at FLIR. On this server, a number of batch operations and scripts are run and the files are then deployed internally on SalesWeb/PPS and externally on FLIR's client support site (<http://support.flir.com>).

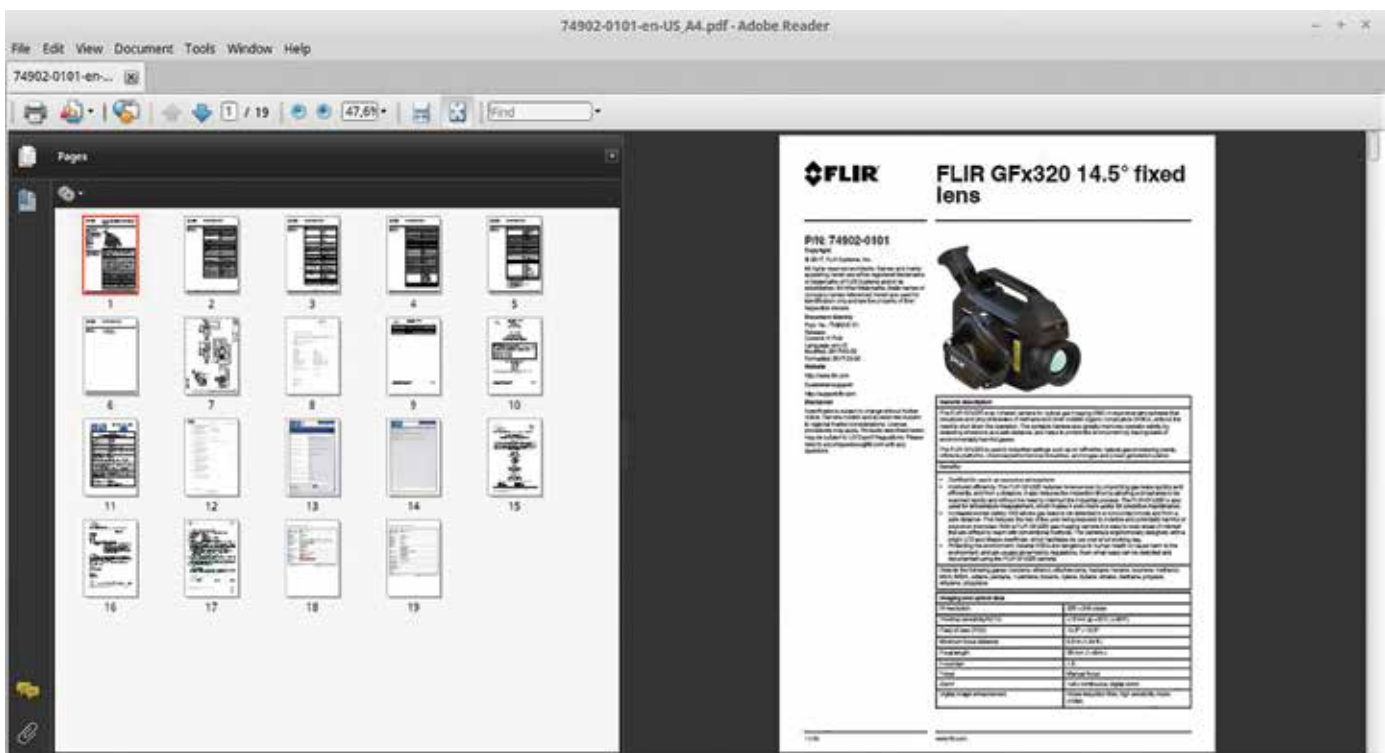


Figure 2. A view of the FLIR GFx320 data sheet in PDF format. The data sheet also includes external PDF files that are fetched and included at the time of formatting (e.g., mechanical drawings, regulatory declarations, etc.).



The World's Sixth Sense™

Product catalogs

[Click to fetch latest data](#)

- **For screen viewing:** Low resolution. Images heavily downsampled to optimize viewing catalogs online.
- **For office printing:** Medium resolution. Images moderately downsampled. Suitable for desktop and network printing.
- **For commercial printing:** Highest resolution. No downsampling of images. PDF files include crop marks, bleed, and Adobe PDF TrimBox metadata. Suitable for commercial printing by offset lithography or high-end digital printers (HP Indigo, etc.).

Product group	Publ. no.	For screen viewing	For office printing	For commercial printing
FLIR Aerial Products	T810219	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Automation Products	T810218	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Cooled R&D Products	T810220	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Fire Products	T810221	A4 US Letter	A4 US Letter	A4 US Letter
FLIR IGM Products	T810224	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Optical Gas Imaging Products	T810223	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Premium Products	T810216	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Software	T810217	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Test & Measurement Products	T810225	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Uncooled R&D Products	T810222	A4 US Letter	A4 US Letter	A4 US Letter
FLIR Volume Products	T810226	A4 US Letter	A4 US Letter	A4 US Letter
ITC Training Courses	T810215	A4 US Letter	A4 US Letter	A4 US Letter
All of the product groups above	T559480	A4 US Letter	A4 US Letter	A4 US Letter

Figure 3. A view of the product catalogs download area. The catalogs differ in content, page size, and view/print optimization.

flir.com, see Figure 4). The main files are HTML files that are then linked to other output data formats. The XML files are exported to an external database and read into a DataTable on the Web server in order to run a product data comparison engine.

Customers can also aggregate their own technical data and download the data as *.csv files for further analysis and post-processing in Microsoft Excel (see Figure 5). This is a clear customer benefit, since customer (and distributor) needs vary considerably. This function leverages on the product data comparison engine.

As was the case with SalesWeb/PPS and TopLeaf, a formatting job can be initiated manually if a critical correction must be deployed within a short period of time (<5 minutes).

Folder structure for technical data in the Simonsoft CMS

As there is a need to allow Simonsoft Batch Publishing to report and act on technical data specifically, then these data are kept separated from other technical documentation in the Simonsoft CMS. They are, however, part of a large number of technical

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Download Datasheets

Click this link to find a manual for a current product.

To find a datasheet for a current product, click on a picture.
To find a datasheet for a legacy product, click [here](#).



Figure 4. Download area for technical data

Download Datasheets

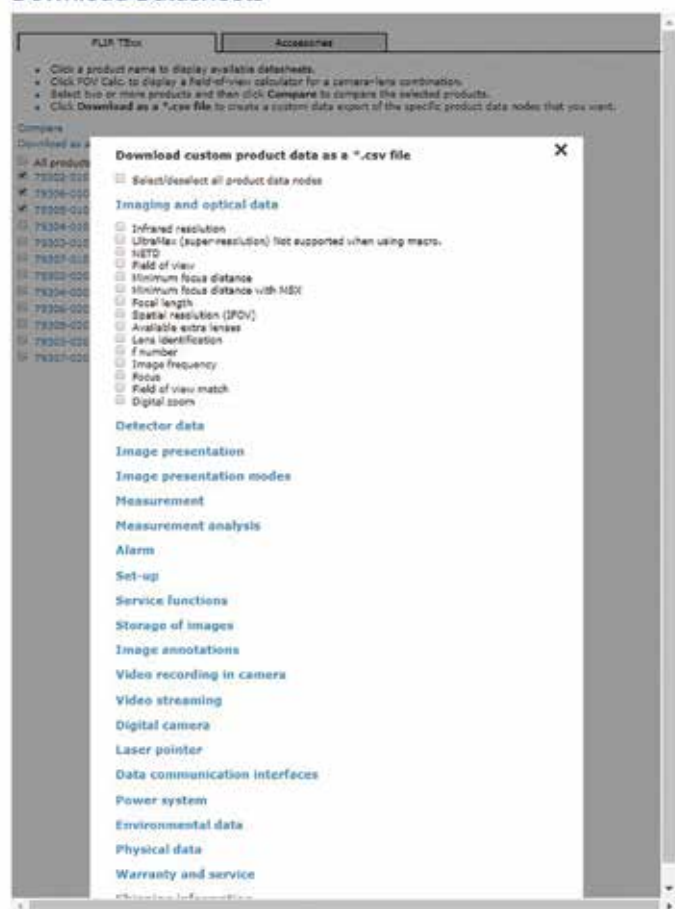


Figure 5. User interface when aggregating customized technical data

publications in the form of including links (XInclude). There are also other reasons why we have chosen to separate the technical data from other documentation—we run a number of scripts and batch operations on XML files in various contexts (e.g., orthographic and typographic quality assurance and correction of possible errors) so we want logical limitations in the directory structure.

The structure for technical data is currently as follows:

- High-resolution product images
- Mid-resolution product images
- Dimensional drawings for PDF inclusion
- External documents for PDF inclusion
- XML files for technical data
- Relational article number lists (generated by SalesWeb/PPS)

Technical benefits

Technical data for approximately 1,500 products are currently maintained in the Simonsoft CMS, and the system offers a number of important technical and strategic benefits compared to maintaining technical data in SalesWeb/PPS:

- CMS with relational information analysis (where-used and dependencies)
- Version management and capacity to compare technical data, temporally or functionally
- Integration of technical data into other publications
- Powerful infrastructure for translation management and capacity for automated translation based on approved past translations in the CMS
- Reporting framework, with identification of revised technical data and generation of automatic formatting tasks
- A framework for formatting a number of different outputs

The Future

After about three years of live operation of the module for technical data, it is our assessment that we have gained a powerful solution, and are well equipped for the future.

In addition, the solution has such a dynamic architecture that it can easily and cost-effectively be modified and further developed for the various types publishing scenarios that may arise.

Such scenarios may include the following:

- Responsive HTML5 output: While our manuals are published in Responsive HTML5 today, the HTML-based technical datasheets are not. This will definitely become a high priority within the near future.
- Additional output formats: Since the technical data system is currently the most up-stream system in the organization, there are a number of downstream information stakeholders and information consumers that could benefit from an easier and more seamless integration of the data in their workflows. Such workflows include, for example, InDesign, and one idea would be to generate partially populated InDesign *.indml documents according to a set template design for further work within local and global marketing departments.

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- Automated population of ERP- and R&D-centric data: Today, some pieces of data for the products are maintained in FLIR's ERP systems and other systems (e.g., JIRA, SharePoint, and Confluence) and are manually entered into the technical data system. As manual work is always a source for error, we are currently looking into how to automate this workflow, either by using an API (Application Programming Interface) or by letting the ERP/R&D systems output data packages that are absorbed in run time during the Simonsoft Batch Publishing tasks.
- A forms-based data entering interface: In the current system, technical data are created and maintained in Arbortext Editor. While this is not a problem for our experienced users and also offers many very powerful features, SMEs (Subject Matter Experts) who have no experience with XML could possibly benefit from a forms-based interface with set menu choices of data. Such interfaces could also support "smart data" (e.g., automatically converting metric to imperial units). We are currently investigating various routes to offer such an interface.
- Aligning data to taxonomical, dictionarial, and transactional product data standards: While there is no standard that solves all global requirements, aligning the product data to some of the more widely used standards and developing associated transactional filters would greatly benefit downstream stakeholders in distribution and e-commerce. Such standards include eCl@ss, ETIM, eOTD, RosettaNet, etc.

Glossary

Formatting engine: A computer program that, with no user interaction, typesets and formats input data according to a set of predefined rules.

Content data model: In this context, a master technical data template that contains the minimum number of data points to describe all products.

Orthographic and typographic guidelines: A set of rules of how text shall be written with regards to the use of proper glyphs. Examples include the use of em dashes instead of hyphens for parenthetical expressions, the proper use of curly quotation marks instead of straight quotation marks, true multiplication signs instead of the letter *x*, etc.

System and function analysis: The analysis of a product in order to reach the optimum number of information nodes to describe that product from a technical data point of view.

Terminological alignment of expressions: The process of investigating and deciding which terms to use for a function or feature and to screen existing content for non-approved term variants.

Tool chain: In this context, the chain of various computer programs, batch operations, and scripts used for a publication scenario.

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About the Author

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Writing Online: Rhetoric for the Digital Age

George Pullman. 2016. Indianapolis, IN: Hackett Publishing Company. [ISBN 978-1-62466-458-8. 224 pages, including index. US\$20.00 (softcover).]



Pullman's *Writing Online: Rhetoric for the Digital Age* addresses the increasing need to “learn, think, and write digitally.” Designed with an accompanying website, this text shows readers how to apply rhetorical practices to the digital world. While the book can be used without the accompanying website,

Pullman strongly encourages readers to work through a section of the book and then apply those skills online. To aid in usability, the book includes a glossary of digital related terms—from <a> to zebra stripes.

Writing Online is divided into seven chapters, accompanied with an introduction and conclusion. The introduction provides readers with more than just an overview of the text; Pullman differentiates between oral, literate, and digital rhetoric. The introduction also familiarizes the reader with certain typographical aspects of the book, such as the use of the text `[[Search: . . .]]` to signal the reader to search on the Internet for a phrase and the use of bold lines to highlight key features for easy scanning.

The book's chapters cover everything from creating a domain name to using markup tools. Beginning with Chapter 1: Hello world, Pullman emerges the reader into the digital world by demonstrating how to set up an online self. The subsequent chapters address the following aspects of digital rhetoric: invention, arrangement, memory, style, and delivery. *Writing Online* incorporates traditional aspects of rhetoric and composition, such as the Toulmin model and Aristotle's appeals, and applies them to an online setting.

At the end of each chapter, a summary section reiterates, “Where you are now.” Readers can use this numerical list to ensure they have obtained all desirable outputs from the chapter. For example in Chapter 5: Memory, the “Where you are now” section provides the reader with a checklist of items that you should have completed by this stage in the book: a landing screen, an about screen, a launch pad, a portfolio, and a reading list.

The Conclusion invites the reader to reflect on the knowledge obtained from the book as well as revisit the

three rhetoric epoch tables listed in the introduction. The “Where you are now” section in the Conclusion is extensive, highlighting deliverables from each of the seven chapters.

Overall, *Writing Online* is a helpful tool for anyone trying to improve his or her online presence using traditional rhetorical skills. Pullman's work provides Web-based guidelines and strategies that are suitable for both students and teachers alike. Furthermore, the book's structure makes it easy to apply the valuable knowledge learned within its pages.

Elizabeth McGhee

Elizabeth McGhee is an English and technical communication graduate student at the University of Alabama in Huntsville. She is currently teaching composition courses as a graduate teaching assistant.

Tutoring Second Language Writers

Shanti Bruce and Ben Rafoth, eds. 2016. Logan, UT: Utah State University Press. [ISBN 978-1-60732-406-5. 288 pages, including index. US\$26.95 (softcover).]



As a composition studies professional, I constantly look for new research to provide me with effective strategies for teaching English language learners. Bruce and Rafoth's edited version of *Tutoring Second Language Writers* is a guide created specifically for writing center tutors to help them better address the needs of English language learners at the university level.

The book, which is composed of four parts, structures around American pragmatist John Dewey's idea of reflective thinking. The first part, “Actions and Identities,” offers readers valuable information concerning labels, stigmas, and other social-related issues that second language writers encounter. This section's chapters helped me to re-conceptualize the role of the writing center to incorporate a more diverse, welcoming attitude towards the growing population of international students.

“Research Opportunities,” the second part of *Tutoring Second Language Writers*, provides the

reader with relevant research methods and associated terminology. The chapter within this section that is most beneficial to my goal of acquiring effective teaching strategies is chapter 7, “Examining Practice: Designing a Research Study.” In this chapter, Babcock discusses research methods that tutors can use to gather valuable statistical information within their own writing center.

The third part, “Words and Passages,” includes personal stories from several experienced writing center tutors, many of whom are also second language writers. In chapter 10, “‘These Sentences Sound Like Me’: Transformative Accommodation in L2 Writing,” Liu describes how one of her students successfully managed to shuffle between U.S. norms and her own cultural identity within her writing. Liu’s story relates the importance of accommodating to second language writers’ needs at the writing center.

The book’s fourth and final part, “Academic Expectations,” contains information regarding the challenges that writing center tutors should expect to face during a tutoring session. Most pertinent to my research is chapter 14, “Helping Second Language Writers Become Self-Editors.” This chapter, written by second language writers Praphan and Seong, offers effective strategies that tutors can use before, during, and after a tutoring session. For example, Praphan and Seong suggest that writing tutors should keep a journal to record what they learn from each session. This journal log could potentially become a valuable resource to share with other tutors or to use in training.

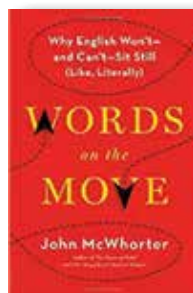
While *Tutoring Second Language Writers* does offer examples of successful tutoring strategies to use in writing centers, it does not provide much in the way of detailed instructional methodology. However, the book provides readers with an in-depth look into the social issues that second language writers encounter and offers a great amount of personal insight from experienced tutors. Also, the “Questions to Consider” and “For Further Reading” sections at the end of each chapter include helpful sources for those seeking additional research on working with second language writers.

Elizabeth McGhee

Elizabeth McGhee is an English and technical communication graduate student at the University of Alabama in Huntsville. She is currently teaching composition courses as a graduate teaching assistant.

Words on the Move: Why English Won’t—and Can’t—Sit Still (Like, Literally)

John McWhorter. 2016. New York, NY: Henry Holt and Co. [ISBN 978-1-62779-471-8. 260 pages, including index. US\$28.00].



Words don’t stand still. They’re constantly changing. We all know this; and yet, even professions that involve writing regularly use words in ways they haven’t been used in speaking for a long time. And words, of course, don’t exist by themselves; they’re embedded in a grammar. For this reason, we can say the same

thing about grammar and about other aspects of language.

McWhorter is not being prescriptive. But any journalist or trade book writer knows that the further your writing gets from speech, the further you get from the reader, in such crucial elements of communication as understanding and remembering, interest, and building the relationship.

These are the things McWhorter explores throughout *Words on the Move: Why English Won’t—and Can’t—Sit Still (Like, Literally)*—things that can make our writing much more effective and successful... if we can tear down the wall between the two modes of language, and allow the spoken language a greater influence on our writing.

Let’s look at a few differences; some of them obvious; others, a little less so. The classical bugaboo is the old “It is I” versus “It is me.” The argument disappears if you use the analogy: No one ever says “It is we” (unless you’re a Scotchman), in contrast to “It is us.” Plus, of course, we never use the long form, but rather “It’s us.”

Probably the next most famous relic is the sentence-ending preposition (ESP). Churchill did that one 50 years ago, with his immortal comment to his secretary who had drafted a document for him where he fine many ESPs “This is a situation up with which I will not put.” Yet even *The Economist*—the ultimate arbiter of good writing—continues to use it.

One of the major battles between our two modes of language is in spelling and pronunciation. Pronunciation varies all over the board: in regional dialects and over time. Spelling acts like a ball chain;

especially in English. It's much worse than the tortoise and the hare. Eventually, the tortoise catches up to the hare. Spelling almost never does. In my writing, I sometimes use *tho* for *though* and *thru* for *through*.

While language may be always changing, changes in spelling are resisted to the end, by many grammatical fundamentalists. And there can be something dissonant about reading a word in print and pronouncing it a completely different way from its spelling. Take the word “draught,” as in: “The region suffered a terrible *draught*.”

To paraphrase Samuel Johnson, who compiled the first true dictionary of English: Dictionaries were not meant to embalm the language.

The value of McWhorter's book is that it makes us as writers more sensitive to the constant change of language, and to incorporate some of those changes in our writing.

Steve Darian

Steven Darian is an STC Fellow and retired from a career at Rutgers University, where he taught business and technical writing as well as other language-related courses. He also taught courses in management and business communications in five countries.

The Forgotten Tribe: Scientists as Writers

Lisa Emerson. 2017. Fort Collins, CO: The WAC Clearinghouse, University Press of Colorado. [ISBN 978-1-60732-643-4. 244 pages. US\$29.95 (softcover).]



Here and elsewhere, Emerson argues that scientists as writers constitute a unique community of practice—a tribe—with sets of beliefs, attitudes, experiences, and methods of production that set it apart from others. Further, that this tribe has been largely neglected and forgotten, or worse, misunderstood and often misrepresented, by those who have sought to describe it from the outside.

In *The Forgotten Tribe: Scientists as Writers*, Emerson seeks to alleviate the deficiency by giving the tribe a voice. Using ethnographic research methods of the kind made famous by Studs Terkel and others, Emerson

has conducted in-depth interviews with the scientist writers themselves about their experiences and practice, and presents the results as extended narratives, with a minimum of interviewer intervention. To allow the interviewees to speak with both spontaneity and candor, the narratives are presented under pseudonyms, but with enough information to provide context. To keep the research balanced, Emerson has interviewed a wide variety of scientists working in many fields, of both genders, and at all stages of their careers, from graduate students to those nearing the end of their careers.

The results are informative, valuable, and often enthralling.

Part of the book's value lies in the sheer joy of hearing first rate minds explore and share, some of them for the first time, their lived experience as writers coping with the unique demands of their community of practice. While individual experiences and viewpoints vary tremendously, many touch on their struggle to find their voice, the challenges of writing where multi-author publication is the norm, coping with the complex procedures and etiquette of peer review, and of writing for a highly critical—“prove it to me”—audience.

Many of the writers also address their early education with respect to writing and how inadequate it was to prepare them for the professional life that followed. Although a few recalled how a good writing mentor had changed their lives, many others reported being put off of writing by bad experiences in English class; encounters with ham-handed or indifferent graduate advisors who provided little or no help with writing were also common.

Many of the more senior scientists also explored how their writing practice had changed over the arc of their careers: some settled into producing work in a narrow field, while other found themselves reaching out to do interdisciplinary writing, or to produce articles for the general public; others have found more of their time taken up in editing and mentoring.

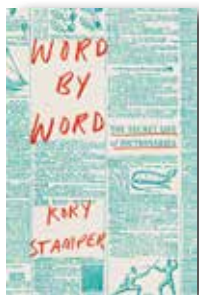
Whether you are a graduate student seeking to better manage your own education, an emerging scientist looking for a “heads up” about what to expect in the life ahead, an academic looking to better integrate disciplinary writing into the curriculum, or a senior scientist looking to broaden your reach or better help those you supervise, *The Forgotten Tribe* has much to offer.

Patrick Lufkin

Patrick Lufkin is an STC Fellow with experience in computer documentation, newsletter production, and public relations. He reads widely in science, history, and current affairs, as well as on writing and editing. He chairs the Gordon Scholarship for technical communication and co-chairs the Northern California technical communication competition.

Word by Word: The Secret Life of Dictionaries

Kory Stamper. 2017. New York, NY: Pantheon Books. [ISBN 978-1-101-87094-5. 301 pages, including index. US\$26.95.]



Maybe you're the type of technical communicator who always secretly wanted to be an editor for a famous book publisher. For most of us, that didn't work out, but, fortunately, Kory Stamper has written a book that lets us vicariously experience an editor's life. And what's more, the life of an editor at the most

prestigious dictionary publisher in America: Merriam-Webster.

OK, I confess to being a word nerd, like most technical communicators, and my addiction extends to having reviewed at least three dictionaries for this journal: *The Merriam-Webster Collegiate Dictionary*, 11th edition (2004), the *American Heritage Collegiate Dictionary* 4th edition (2008), and the *Concise Oxford English Dictionary* 12th edition (2011). So that defeats Stamper's claim that "back in the days of yore when dictionaries were actually reviewed" (p. 110), because this journal actually reviews them.

Of course, not everyone loves dictionaries. Stamper identifies two groups: one who see dictionaries as infallible, the other who use it as a doorstop. And then there is the Internet, and who knows what that will ultimately do to the printed dictionary.

Stamper is an entertaining writer and has many good stories to tell in *Word by Word: The Secret Life of Dictionaries*. Her vocabulary is tremendous, and she sent me to the dictionary several times for words like "cacafuego" and "foofaraw."

Perhaps the book's best chapter is entitled "Marriage," where she relates what happened to her personally when Merriam-Webster expanded the definition of marriage to include gay and lesbians. Stamper was the subject of a deluge of email directed at her for attempting to advocate for a political cause, when she was just doing her job and saying how the word was being used, and not how it "should" be used.

Now I come to my major criticism of *Word by Word*. Despite the fact that Stamper has a stupendous vocabulary, she swears almost 30 times in this book. I am appalled, first, that she would do such an unprofessional thing, and, secondly, that her publisher, Pantheon Books, would let it be published this way. Believe me, I am no prude and believe that swearing has its place in language—when you are extremely angry, sometimes profanity is the appropriate response. But as every child learns in time, you have to learn when and where to use it. And a professional book on language is not the place.

Many years ago Cole Porter wrote a song called "Anything Goes" and he uses the following lines:

"Good authors too who once knew better words
Now only use four-letter words
Writing prose
Anything goes."

So maybe this is a problem that has been around for a while, but still I hope that millennials who are used to potty-mouthed comedians will expect more from their writers, and certainly more from their publishers, especially one with the stature of Pantheon Books.

Charles R. Crawley

Charles R. Crawley has always taught his students at Mount Mercy University in Cedar Rapids, Iowa, never to read without a dictionary—a good, collegiate dictionary such as Merriam-Webster—at arm's length.

Paul Rand: A Designer's Art

Paul Rand. 2016. New York, NY: Princeton Architectural Press. [ISBN 978-1-61689-486-3. 246 pages. US\$50.00.]



Paul Rand is a legend among American designers, his work is shown as icons of great design in studio and in design history classes, his theories and philosophies are touted by professionals as well as professors as the “do’s” and “do not’s” of design. In *Paul Rand: A Designer’s*

Art, you can read first-hand the master’s words and see how his work embodies those words. The book is a collection of his essays, based on an earlier publication, *Thoughts on Design*, and accompanied by many examples of design, mostly from his own work, which help illustrate the points he makes in each essay.

While it may be intimidating for some to jump into such a large collection of essays, it can be read fairly quickly. Despite this, the depth of thought in many of the works will require some reflection, and perhaps even necessitate rereading to develop a deep understanding. The work includes Rand’s interpretations of the theories of other masters from both Art and Design histories, and how he employs those truths in his own design work.

As mentioned, accompanying the essays is a collection of work, mostly that of the author, which helps to illustrate the ideas and the diverse ways in which one can interpret the essays. He includes historical images from other artists and designers when necessary to make a point. This collection of Rand’s work is one of the most complete you will find, but he was far too prolific to include everything. The examples range from some of his more well-known work, such as his logo designs for ABC, IBM and others, but also includes some of his lesser known works as well.

Paul Rand: A Designer’s Art reads as a guide for young designers and graphic design students. But it will also appeal to followers of Rand’s work, methods, and philosophies. The book does contain a few prompts at the end that the reader can use to develop design projects to test the skills and knowledge learned from reading the text. An afterword by Steven Heller provides biographical information about the Rand, while also providing a humanizing effect for this design legend.

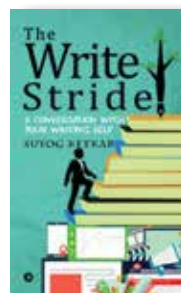
Paul Rand’s collection of essays shows there is much to learn from the genius of this renowned designer. This collection of his work alone is reason enough for many to purchase the book. As you would expect from a designer of Rand’s caliber, the book is beautifully designed, and the work is presented in a logical manner. *Paul Rand: A Designer’s Art* is a book that can be read over and over again, each time gaining the reader deeper insight into the mind of one of America’s graphic design icons.

Amanda Horton

Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma in the areas of design technology, design studio, and history of graphic design. She serves as a book reviewer for Technical Communication.

The Write Stride: A Conversation with Your Writing Self

Suyog Ketkar. 2017. Chennai, India: Notion Press, Inc. 2017. [ISBN 978-1-947283-04-6. 87 pages. US\$10.00 (softcover).]



At a time when technical writing in India seems to have gathered momentum as a significant career option for people with sound technical aptitude and good English skills, Ketkar’s book *The Write Stride: A Conversation with Your Writing Self* comes in as a vindication of this development. A young writer has dared to write on writing—a form of art that stands apart from others.

This book comprises ten independent essays on technical writing, design, editing, and the associated topics. Ketkar expresses a strong hope in the “Preface” that *The Write Stride* will lend us “the required insights that we could use to make our writing effective, free-flowing, and result oriented” (p. xvi). In the first essay, “Memory and Design,” he establishes that an ideal design should be a part of the user’s stored procedures for it to be user friendly. To him, like many of us, “the more intuitive the design is, the more the users can remember and recall” (p. 6). He advocates that

technical writers must align the information with the readers' or the users' intention.

For an effective organizational communication, a technical writer wears several hats, such as a torchbearer, trouble-shooter, detective, fighter, researcher, and storyteller. In "Prober Self," Ketkar dissects these multifarious personas and justifies their stance. In "Information Prism," he explores the complex relationships between product and goals, architecture and requirements, and functions and specifications. With the help of illustrations and contextual examples, Ketkar highlights the interrelationship among products, goals, architecture, and requirements.

"The Fix of Choices" deals with writers' skill of gauging the readers' or users' requirement and providing the desired information with such granularity that the ambiguity factor can be entirely ruled out. In "Information Transformation Cycle," Ketkar talks about how a cyclical transformation of information affects the business at various stages and how a writer can positively influence this incessant transformation process.

Although in "Learning Cognitively," Ketkar prescribes a subtle approach to facilitate learning among the users to experience optimum usability, he spells out handy tips on writing and editing in the two subsequent essays: "You Can Write Better" and "Be Your Own Editor."

"The Story of Nonfiction" provides you with a comprehensive analysis of the similarities and the dissimilarities that exist between storytelling and technical communication. Ketkar ends with the essay, "Command Respect as a Writer," the underlying message of which can be succinctly put as, "Write not to impress. Write but to express" (p. 82).

The Write Stride's conversational tone, subtle humour at places, and consistent language usage will keep you hooked as you flip through the pages. I strongly feel all writers including technical communicators will find this book a worthy contender for a place on their bookshelf.

Arun Dash

Arun Dash works as a Senior Technical Author for AVEVA India LLP based in Hyderabad, India. With over a decade of technical writing experience, he has experimented with writing for various domains. He now continues his PhD in English from KIIT University, Bhubaneswar.

The War at Work: A Tale of Navigating the Unwritten Rules of the Hierarchy in a Half-changed World

Seth Mattison and Joshua Medcalf. 2017. Lexington, KY: Train to be Clutch. [ISBN 978-0-6928-2757-4. 162 pages. US\$13.99 (softcover).]



This is a fable of a senior vice president's spiritual journey from the hierarchical rules of his early years to acceptance of the network rules of his subordinates. He learns to be a more effective leader by blending the styles.

The War at Work: A Tale of Navigating the Unwritten Rules of the Hierarchy in a Half-changed World is a call for today's managers to shift their leadership style to cope with the effects that social networking has had on the traditional hierarchical style of leadership in American business. According to the authors, the war is the conflict caused by the unwritten rules that govern the worldviews and expectations of the four generations now in the workplace. Roughly speaking, everyone born after 1980 is more likely to operate by networking rules, making the work place a half-changed world. Because unwritten rules are unconscious standard operating procedures, violation of one generation's rules by another causes conflict.

Hierarchy and networking are equally weighted here. When younger workers operate under network rules, while their bosses apply hierarchical rules, clashes are inevitable and may lead to dissatisfaction, disaffection, and failure. Imagine the confusion and resentment generated when a manager's rule "I'm your boss, not your friend." collides with an employee's rule "We are all peers." Juggling these competing worldviews can sidetrack the most conscientious manager; not recognizing them can mean failure.

The book's premise is that *inner* change is required. It cites common unwritten rules in hierarchies and networks to illustrate the conflict that is possible when speaker and listener are unaware of their different worldviews.

Based on their description of how technological changes reshape and redistribute power, the authors present three Foundational Truths behind the unwritten rules of the network (pp. 78–79).

1: Unprecedented Access to Information

Rule: Information should be accessible, open, and free.

2: Exponential Reach

Rule: Everyone is able to contribute and participate regardless of age or experience.

3: Hyper Immediacy

Rule: Recognition is instantly attainable.

The War at Work's core message is that successful leaders will use the 5 Pillars of Transformation—Heart Posture, Mindset, Culture, Process, and Technology—to balance between the hierarchical managers and the networking employees work styles. The authors depict our transforming leader-hero exploring each pillar in detail, learning how to lead effectively without stress.

What does this fable mean to technical communicators? We, as noncombatants, are on the front lines of this war. We rely on leaders for our assignments and on workers for our information. Navigating through a war zone can be tricky. We can be more effective by learning about the styles and expectations that shape our bosses, subject matter experts, and ourselves. Identifying our audience in this way may give us the versatility to work comfortably with everyone.

I did not enjoy this book for several reasons. The fable format oversimplifies a complex social upheaval. The authors present no new insights about the war at work. The editing is erratic; there are distracting spelling and grammar errors throughout.

Marcia Shannon

Marcia Shannon, CPTC-Foundation, is a current STC member, Secretary for the Instructional Design & Learning and Technical Editing SIGs. She has more than 30 years' experience in IT, consumer goods, mortgage banking, and health insurance. Marcia is currently on sabbatical as she prepares for new adventures in writing.

Flipped Learning: A Guide for Higher Education Faculty

Robert Talbert. 2017. Sterling, VA: Stylus Publishing. [ISBN 978-1-62036-432-1. 244 pages, including index. US\$32.50 (softcover).]



Because best practices in pedagogy change, the flipped classroom might seem like yet another idea experiencing its fifteen minutes of fame, but if you examine it a little deeper, you'll find old roots to models like the Oxford tutorial method. A flipped model in its simplest terms exposes new material

to students when they are alone and then provides challenging material in class when the instructor can provide guidance. In *Flipped Learning: A Guide for Higher Education Faculty*, Talbert provides a brief history stating that past teaching practices “often share characteristics of flipped” classes (p. 26), but he also argues that to meet his definition of “flipped,” the instructor must provide some form of structured activity in both the individual and group learning spaces.

For example, asking students to read material before class doesn't meet the criteria. Instead, the instructor must give guidance, such as “activities that students complete to show evidence of fruitful engagement with the readings” (p. 27). Throughout the book, you'll find several examples, including the video lecture, which most people associate with a flipped course.

Talbert's first two chapters are where he defines a flipped course then provides a brief history and theory before moving to more practical material. Chapter 3, which reviews several flipped learning case studies—math, engineering, business, and online/hybrid courses—lacks good models for the humanities. While Talbert uses examples that might challenge math-phobic instructors, don't let this dissuade you from reading this book. The focus on STEM over humanities and social sciences is about the only flaw in this text.

Part two functions like a course design workshop that should be required reading for teacher training. Talbert mixes several “backwards design” models and Bloom's taxonomy as he guides you through a seven-step process for flipping your course. He asks you to rank your learning objectives by cognitive complexity

and then divide them so that the less complex objectives are met (or attempted) in the individual learning space while the more complex are tackled in a key activity performed in the group space. The chapter examples are sometimes too general (or math focused), but experienced instructors should be able to connect the ideas to their own course content.

The discussions on hybrid and online courses focus more on the hybrid model wherein some of the course is conducted in person. In a future edition, perhaps Talbert might expand this with examples from completely online courses.

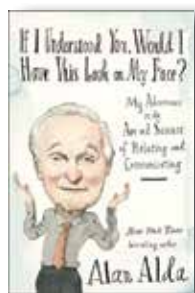
The last chapter provides a common issues Q&A, such as how to handle students who feel the flipped model isn't really teaching and how to overcome anxiety surrounding issues of teaching in new ways. Talbert recommends a one-year plan "because the amount of time needed to create resources and design a course structure is manageable if spread out over six months to a year" (p. 192). The course design process, the tools and tips, and the excellent index make *Flipped Learning* worth a read.

Kelly A. Harrison

Kelly A. Harrison MFA, works as a consultant, speaker, and writing instructor in San José, CA. For over 20 years, she has written print and online content for various high-tech computer companies. Currently, she teaches writing at San José State University and Stanford University.

If I Understood You, Would I Have This Look on My Face? My Adventures in the Art and Science of Relating and Communicating

Alan Alda. 2017. New York, NY: Random House. [ISBN 978-0-8129-8914-4. 214 pages, including index. US\$28.00.]



If you're skeptical that actor Alan Alda has much to teach about communication, *If I Understood You, Would I Have This Look on My Face? My Adventures in the Art and Science of Relating and Communicating* quickly dispels any doubt; in 214 gently self-deprecating pages, he teaches how to build empathy and

communicate better. Alda hosted *Scientific American Frontiers* for 13 years, learning as he did how to help scientists explain their research and its excitement and importance: not just what they do, but why it matters.

Uniting experts with users of their knowledge is what technical communicators do for a living, and "Developing empathy and learning to recognize what the other person is thinking are both essential to good communication" (p. xvii). Alda's advice improves communication with loved ones, unfamiliar audiences, and experts. Success requires knowing both what you want to communicate and what your audience wants or needs to hear. Failure has consequences. For example, computer security staff have failed to persuade Management to improve security when they focused on technology, but Management wanted to know the bottom-line impact. No matter how clearly they described the technology, managers weren't listening. Success also requires an understanding of the "curse of knowledge:" what *you* know isn't what *they* know. Most experts assume everyone shares their knowledge, and fail to make that knowledge explicit. Putting ourselves in our audience's shoes (experiencing their thoughts and feelings, using the products we document) mitigates that problem.

Alda reminds us that communication involves both the head (facts) and the heart (feelings). When they conflict, communication can only occur if we resolve the conflict. Communication fails in other ways, including focusing on our assumptions rather than our audience, ignoring our partner's body language, and not responding to our partner's message—in short, through disconnection. Responsive listening re-establishes connections by letting others change our mind and by grasping the difference between one-way lectures and true conversations. Alda teaches the "yes and" technique: rather than disagreeing, accept our partner's message (*yes...*) and build on it (*and...*). He uses improvisational theater to teach people to create shared spaces and shared experiences (i.e., empathy). Communication is a dance with a partner, "not a wrestling match with an opponent" (p. 194). Working together, students learn to fluidly switch between leading and following. But you don't need improvisation courses to learn such empathy; you need only remember to pay close attention to spoken and unspoken clues, particularly when you'd rather just get on with your day.

Alda has other important lessons: We must tell enough to interest our audience, then relinquish our leadership and let them tell us what more they want. Laughter, emotion, and story make communication memorable. We underuse these tools. We can incorporate Alda's empathy-based approach, possibly complemented by such tools, in training, iterative design, and social media by integrating knowledge transfer with audience feedback.

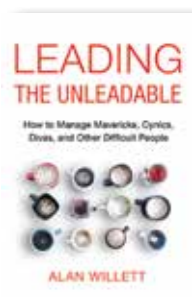
Anyone who values clear communication, in person or in writing, will benefit from *If I Understood You, Would I Have This Look on My Face?*

Geoff Hart

Geoff Hart (www.geoff-hart.com) is an editor, technical writer, and translator who often teaches these skills to others.

Leading the Unleashable: How to Manage Mavericks, Cynics, Divas, and Other Difficult People

Alan Willett. 2017. New York, NY: American Management Association. [ISBN 978-0-8144-3760-5. 226 pages, including index. US\$17.95 (softcover).]



Willett's *Leading the Unleashable: How to Manage Mavericks, Cynics, Divas, and Other Difficult People* discusses the issues that arise from managing people. The book aims to provide methods for improving leadership that will lead to a productive, stimulating environment that yields valuable employee

output. Willett divides the book into four sections: "The Call to Exceptional Leadership;" "The Leader in Action: Spotting Trouble, Dealing with Trouble;" "The Leader in Action: Preventing Trouble;" and "Leading Leaders." Each section is compiled of several chapters that explain valuable leadership strategies and reflection points for assessing your own leadership.

Willett reminds us that managing others is a choice that directs our attitude, interactions, and expectations of ourselves and those that we manage. The choice, intentional or not, requires us to develop skills for managing others. The skills needed for leadership often vary widely from the skills that led us to the role of

leadership. Willett discusses the mindset we need for leadership and what it means to be an exceptional leader.

A necessary leadership skill is recognizing troublesome situations and taking action. Willett provides guidelines for recognizing trouble, taking action, and establishing change with emphasis on the leader's mindset and attitude toward the situation. Each strategy for change is paired with real-world situations to help us understand the value, see the process in action, and the outcome of the change.

The exceptional leader has learned to prevent trouble before it becomes a problem through goals and expectations. Willett helps us on our journey to becoming an exceptional leader with a discussion on how to cultivate an environment that drives good work and quality output. The discussion includes organizational goals that have become words "written on the wall" and lack the supporting environment to reach those goals.

Willett ends *Leading the Unleashable* with a discussion on leadership throughout an organization and how to assess the leadership of ourselves as well as other leaders. The discussion covers the challenges and variations of leadership, establishing expectations for ourselves and others, and achieving continued change.

I found this book to be a wonderful resource for all leaders, because it discusses strategies for improving leadership at all levels with a thorough discussion of leadership challenges and strategies for improvement.

Sara Buchanan

Sara Buchanan is an STC member that serves as the NEO STC community newsletter editor and is the membership manager for the IDL SIG. She is a Technical Writer at LCS in Cincinnati, OH, for the software, Rent Manager.

Let the Story Do the Work: The Art of Storytelling for Business Success

Esther K. Choy. 2017. New York, NY: AMACOM. [ISBN 978-0-8144-3801-5. 230 pages, including index. US\$24.95.]



What comes to mind when you hear “Once upon a time....?” Do you think back to your childhood and the many stories you heard as a child? Stories are no longer a thing of the past. They are now becoming what businesses are using to capture your attention. Choy opens her book, *Let the Story Do the Work: The*

Art of Storytelling for Business Success, drawing the reader into a time when she heard a radio ad that caught her attention, “Tell your business story” (p.4). Not long after, she saw a flyer at a private club with the headline “Bring the Story Home.”

A story captures the audience’s emotions and offers the ideal environment to present the logic needed to make the listener think. The goal of which, in the business context, is to inspire action.

Choy explains how an effective story follows the three-act formula. Act I is the orientation and the setting. You meet the actors involved. Next, Act II, the longest part of the story, represents the journey and includes the challenge. Finally, in Act III, the lead character overcomes the challenge.

In keeping with her three-act formula for effective stories, Choy implements this same formula in her book: Part One: Anatomy of a Story; Part Two: Bringing Stories to Life; and Part Three: Stories in Action.

In Part One, she examines the basic plots used in business communication: origin, rags to riches, rebirth, overcoming the monster, and the quest.

In Part Two, she includes a great five-step process to weave data and story. I especially like that she discusses how to include simple visuals, including how to effectively use a white board in a meeting. In addition, she discusses six types of StoryPicture and then includes steps to develop your own StoryPicture, along with a list of best practices.

In Part Three, Choy addresses how to use your own story to build credibility and connection and how to do successful networking by starting with a good story hook (conflict, contrast, and contradiction).

You can put these chapters to use immediately in preparation for networking.

Inspired by Choy’s book, I developed a script for a short video for one of our upcoming product features. When writing the basis for the script proposal, I addressed the core story components that Choy discussed: structural, elemental, authentic, and strategic. When I did this, the video structure and content became clear. I intend to use *Let the Story Do the Work* as a reference as I develop other videos.

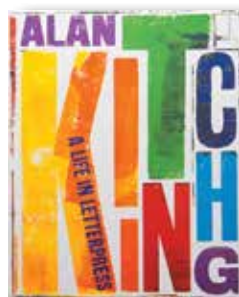
Even if you aren’t developing a video, there are other instances where telling a story is valuable, for example, in a job interview and when you are networking. You’ll find Choy’s book to be a great reference.

Rhonda Lunemann

Rhonda Lunemann is a technical writer with Siemens PLM Software and is a senior member of STC’s Twin Cities Chapter. She assists in arranging programs for the Twin Cities Chapter.

Alan Kitching: A Life in Letterpress

John L. Walters and Alan Kitching, eds. 2017. London, United Kingdom: Laurence King Publishing. [ISBN 978-1-7806-7772-9. 408 pages. US\$70.00.]



The much-anticipated monograph on Alan Kitching (b. 1940), one of the foremost practitioners of experimental letterpress typography and printmaking of the 21st century, is an extensive record and personal account of his innovative methods for the letterpress

printing process and high-spirited lettering style. He works with letterpress and woodblock type and relies on a centuries-old method of printing that principally uses hand-fed presses to attain colorful hand-set letterforms in an unsystematic manner. *Alan Kitching: A Life in Letterpress* traces the development of Kitching’s creative output, colorful typographic experiments, and hand-printed letterpress pieces over a 50-year period. Kitching says, “The book started life some 14 years ago by my late wife and partner Celia Stothard in response to an article commissioned by John Randle of the Whittington Press for his journal ‘Matrix’.... The story was made by John and I having many pleasurable discussions and

interviews for the writing to take shape. The choices of work were done between Simon and my then assistant Jon Kielty who was involved with my archive. The content was drawn from some 60 years of work and association with many people who I had been working with throughout that time.”

At Kitching's Typography Workshop (which houses the biggest collection of Printers' Wooden type in Europe), he customarily runs a hands-on two-day letterpress printing workshop arranging physical types, investigating the fundamentals of typography, and also offering a series of irregular themed “type talks” from the Typography Workshop annals. He is a maestro at the precise details of typographic printing and has brought back to life a craft-based approach and human connection, which is the nucleus of his design. As contributor Derek Birdsall explains in the foreword, “I know no man more in his element. With a wizard's mix of inks and fonts, Alan has produced unique posters and broadsheets, astonishing in their originality and freshness. Indeed, he has created a new language of vision: ‘Magick—with a ‘K’” (p. 7). From beginning to end, *Alan Kitching* contains a rich source of photographs and typographic images, some independently printed by hand on a Vandercook no. 3 proof press.

Overall, *Alan Kitching: A Life in Letterpress* is a very appealing and comprehensive book, accompanied by numerous examples of Kitching's extensive body of work: type specimens, jobbing printing, experimental prints, book, magazine, and catalogue covers, letterpress broadsides, and limited edition prints for the publishing and advertising industry. The book provides guidance for everyone who is interested in using mechanical tools and devices for letterpress printing or concerned with the expressive power of typography and graphic communications. This must-have book unveils Kitching's inventive style through imaginative and unusual use of wood letterforms for modern visual communication forms.

Richard B. Doubleday

Richard B. Doubleday is an associate professor in Graphic Design at Louisiana State University's School of Art. He is a contributing author of *Dialectic*, a scholarly visual communication journal, and *Graphic: 500 Design that Matter*. Richard has been published extensively in leading graphic design journals.

Phantasmagorias: Daydreaming with Lines

Willi Kunz, ed. 2017. Niggli, Switzerland: Braun Publishing AG. [ISBN 978-3-7212-0964-8. 112 pages. US\$29.95.]



For many students and designers, the beginning stages or entry point into a new design project most often makes us nervous with feelings of uncertainty. This emotional state or reaction can be stifling to the creative process and prevent us from

making new things or thinking of new ideas in a natural way. Ultimately, the graphic designer is regularly pursuing pragmatic concepts, refining and solving graphic communications problems, and continually challenged to inspire, create new forms, and make relevant work in the practice of contemporary graphic design. When everything is considered, graphic design is about order and clear messages, inventing and revealing new ideas and sharing those personal views filtered through the state of one's vision.

In *Phantasmagorias: Daydreaming with Lines*, Kunz demonstrates his methods for constructing compositions with lines and sets in motion a strategic guide to empower and inspire students to harness their creativity and establish a new path to creative problem solving and inventing new forms. He shows how personal interest is put into practice and assimilates his rationalization for the usefulness and reliability of modernist graphic design principles. Kunz's design sensibility and specific design ideas are explored, offer insight, and provide the reader with ideas to encourage experimentation with lines and take command of one's creative vision and spirit. This book offers design students and practitioners numerous techniques for the formation of ideas and the creative use of lines to investigate form and the delineation of space within a two-dimensional field, while helping to build a strong design foundation. Through a series of design studies, readers will gain a better understanding of how one of the basic art elements—the line—is analyzed and explored to convey movement and mood, and unlimited possibilities. Kunz explains, “My books ‘Typography: Macro- and Microaesthetics’ and ‘Typography: Formation and Transformation’ were intended for typographic design education; they reflect my ideas and design principles. ‘Phantasmagorias: Daydreaming with

Lines' takes my personal interest in *The Line* further than previously discussed in my books."

Phantasmagorias presents instructional examples, illustrated methods and well-documented repetitious visual studies to arouse inventive thinking and produce imaginative forms. This book sets out to identify, through a rigorous series of steps, the importance and creative recognition of the design iterative process. For design students and graphic design practitioners who are eager to understand the design process in greater detail, this book offers insight and inspiration to expand your creative capacity and express ideas more fully.

Richard B. Doubleday

Richard B. Doubleday is an associate professor in Graphic Design at Louisiana State University's School of Art. He is a contributing author of *Dialectic*, a scholarly visual communication journal, and *Graphic: 500 Design that Matter*. Richard has been published extensively in leading graphic design journals.

Graphic: 500 Designs that Matter

Phaidon Editors. 2017. New York, NY: Phaidon Press. [ISBN 978-0-7148-7384-8. 708 pages. US\$24.95.]



Graphic: 500 Designs that Matter, a recently developed, all-inclusive reference work showcases five hundred highly original, classic works of graphic design, from the dawn of typographic printing to the present day. This book traces an outstanding collection (15 prearranged categories) in the

evolutionary trail of graphic and typographic design history, while offering a wide-range of contemporary visual communication examples. Inside the book is a rich source of rarely seen historical material and familiar graphic design classics. The Phaidon editors say, "We looked at designs that have created a benchmark for excellence and innovation in the field of graphic design. Each design was a turning point in the history of graphic design. Even designs that are hundreds of years old are still incredible sources of inspiration."

Originating from the celebrated *Phaidon Archive of Graphic Design*, this fascinating treasury of classics not only provides its readers with historical and sentimental

interest, but is destined to become a relic of graphic designs rich visual heritage.

The extensive archive praises the legacy of graphic design history emerging as early as the 1300s to the present day. The book's introduction is a firsthand account of the origins of "graphic design", a term first used in print in the 1922 essay "New Kind of Printing Calls for New Design" by the American book designer William Addison Dwiggins. From beginning to end, a simple yet attractive page layout flows in an unimpeded, balanced manner exhibiting an uncomplicated typographic system in contrast to classical gems of graphic art. "Emilia Terragni, the publisher, and Julia Hasting, the art director, were deeply involved in the design of this book—especially the pairings. They decided on the short list of designs, as well as the pairings and the sequencing. Some pairings visually made sense right away, while others were based on history, themes, or even typeface," explained the editors.

Graphic is a captivating cultural and historical examination of five hundred iconic works that commemorate the power of graphic design and embody the spirit of their time. Juxtaposing five hundred visual designs over several hundred years and across a wide range of niche areas from the Gutenberg Bible and Hypnerotomachia Poliphili of the fifteenth century, to the trend-setting Baseline International TypoGraphics magazine and Gotham typeface of today. The editors note, "By not arranging the designs chronologically or alphabetically, *Graphic* makes people look at the development of graphic design in a different way. Here, dates and designers are secondary. Instead, what really matters is the visual impact that the designs still carry—and will carry—for many years to come." This reference guide is appealing and provides brief, but comprehensive, historical analysis for everyone who is interested or concerned with typographic history and graphic communications, and will soon become an indispensable guide. It is a pivotal addition to the development of graphic design as a scholarly discipline and an important resource on contemporary graphic design.

Richard B. Doubleday

Richard B. Doubleday is an associate professor in Graphic Design at Louisiana State University's School of Art. He is a contributing author of *Dialectic*, a scholarly visual communication journal, and *Graphic: 500 Design that Matter*. Richard has been published extensively in leading graphic design journals.

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Lyn Gattis, Editor

The following articles on technical communication have appeared recently in other journals. The abstracts are prepared by volunteer journal monitors. If you would like to contribute, contact Lyn Gattis at LynGattis@MissouriState.edu.

"Recent & Relevant" does not supply copies of cited articles. However, most publishers supply reprints, tear sheets, or copies at nominal cost. Lists of publishers' addresses, covering nearly all the articles we have cited, appear in *Ulrich's international periodicals directory*.

Communication

Drawing from available means: Assessing the rhetorical dimensions of Facebook practice

Hannah, M., & Lam, C. (2017). *International Journal of Business Communication*, 54(3), 235–257. doi: 10.1177/2329488415572788

"A company's presence on Facebook plays an important role in engaging its customer base. However, little empirical work has fully examined the nature and impact of corporate Facebook posts on engagement. In this study, [the authors] analyzed 680 Facebook posts collected from a sample of six companies over a period of 12 months. [They] examined variables including post frequency, content type, illocutionary act, linking style, and media. [They] found that entertainment posts were more engaging than operational news and innovation posts. Educational posts were also more engaging than innovation posts. With regard to illocutionary acts, expressives, or posts that express the writer's emotion, were more engaging than all other illocutionary acts. Additionally, representative posts were more engaging than directive posts. For linking style, [the authors] discovered that posts containing no link were actually more engaging than posts with an external link. [They] also found a significant interaction between content type and linking practice, which indicates that linking style influences the effectiveness of some content types in engaging audiences. Finally, [they] found that companies overwhelmingly relied on the use of text and images in their posts over video and image galleries. [The authors] speculate that content that removes a user from the Facebook 'universe' (e.g., a link or a video) actually may demotivate a user to engage with the original content of the post. [They] discuss these results

from a rhetorical perspective and provide insight for corporate Facebook practices."

Katherine Wertz

Inclusive language use in multicultural business organizations: The effect on creativity and performance

Lauring, J., & Klitmøller, A. (2017). *International Journal of Business Communication*, 54(3), 306–324. doi: 10.1177/2329488415572779

"Few studies have dealt with inclusive language use in multicultural organizations. This is unfortunate because it has been hypothesized that such organizations will be more creative and will perform better than monocultural organizations if communication issues are dealt with correctly by managers. In this study, [the authors] test the general hypothesis that inclusive language use by managers and employees in formal and informal situations will increase the creativity and performance in multicultural organizations. By use of responses from 676 individuals employed in privately owned multicultural companies, [the authors] found that management common language communication was strongly associated with performance but not with creativity. Openness to language diversity among employees, however, had strong relations with both creativity and performance. This indicates that management communication may provide information and a shared identity that can increase the performance of an organization. Yet in order to increase creativity, there is a need to also facilitate inclusive group processes. The findings provide new insights into the theoretical idea that diversity leads to creativity and performance if communication is managed correctly."

Katherine Wertz

Influence of organizational culture on organizational effectiveness: The mediating role of organizational communication

Gochhayat, J., Giri, V. N., & Suar, D. (2017). *Global Business Review*, 18(3), 691–702. doi: 10.1177/0972150917692185

“Cultures have been found to predict the organizational effectiveness (OE). This article explores how a strong or weak organizational culture (OCL), irrespective of its taxonomy, affects OE in Indian technical education. It also examines the mediating role of organizational communication (OCM). Data were collected from 167 heads of engineering and management schools on OCL and OE and 334 of their subordinates on OCM through a questionnaire survey. Results indicate that organizations with a strong and deep-rooted culture perform more effectively than organizations with a weak culture. The effect of OCL passes to institutional effectiveness through OCM. Hence, higher educational institutions need to focus on strengthening OCL and OCM in order to improve their effectiveness.”

Yvonne Wade Sanchez

Scholars and poor communicators? Old Masters exhibitions as a scientific practice and communication activity for art museum curators

Ughetto, P. (2017). *Current Sociology*, 65(3), 376–394. doi: 10.1177/0011392115617226

“Museum curators are rarely the subject of analysis as scientists. By contrast, there is a whole literature on their propensity to give priority to the scientific knowledge of collections over the effort to communicate with different audiences and make museums accessible. This article examines the Late Raphael exhibition at the Louvre (Paris) and draws on the exhibition texts (catalogues, artwork labels, wall texts) to explore the practical activity and preoccupations of the museum curators concerned: the exhibition is simultaneously material for the scientific demonstration of a thesis—part of a debate on the value of the artist’s late works—and for communication aimed at both fellow specialists and the wider public. Communication is not distinct from scientific research

and handled with less respect. The two are directly interwoven and communication represents a practical activity with its own difficulties.”

Yvonne Wade Sanchez

Social media adoption in business-to-business: IT and industrial companies compared

Veldeman, C., Van Praet, E., & Mechant, P. (2017). *International Journal of Business Communication*, 54(3), 283–305. doi: 10.1177/2329488415572785

“This article investigates Belgian business-to-business (B2B) companies’ perceptions of and attitudes toward social media, matching the findings with existing U.S., U.K., and Dutch research. Using survey data from a nonrepresentative judgment sample of 92 Belgian B2B companies, [the authors] show that 85.9% of Belgian B2B companies that participated in [this] research use social media to ensure their influence on target groups. The survey also reveals that 40.8% of IT companies implement a social media strategy against only 26.7% of industrial B2B companies. Relying on the technology acceptance model, [the authors] argue that IT companies are more inclined to adopt social media because they evaluate social media’s usefulness higher than industrial enterprises. Qualitative follow-up research (in-depth interviews with 11 B2B enterprises) further explains the observed differences and similarities between both sectors, analyzing perceived benefits and risks, social media knowledge, and strategies. [The authors] conclude the article by listing various suggested actions that can help B2B companies effectively leverage social media.”

Katherine Wertz

Design

A framework for visual communication at Nature

Krause, K. (2017). *Public Understanding of Science*, 26(1), 15–24. doi: 10.1177/0963662516640966

“The scientific journal *Nature*, published weekly since 1869, serves as an excellent case study in

visual communication. While journals are becoming increasingly specialist, *Nature* remains firmly multidisciplinary; and unlike many scientific journals, it contains original journalism, opinion pieces, and expert analysis in addition to peer-reviewed research papers. This variety of content types—covering an extensive range of scientific disciplines—translates into a wide and varied audience, and the need to employ an equally wide variety of communication styles. For example, a research paper may employ technical language to communicate to a highly specialized audience in that field, whereas a news story on the same subject will explain the science to an educated lay audience, often adding a wider context and stripping out acronyms. Each type of piece will use a communication approach tailored for its intended audience. This is true for visual content as well: the intended audience of a scientific figure, illustration or data visualization will determine the design approach to that visual. At *Nature*, given the high volume of content plus high quality standards, this process is applied in a fairly systematic way, using a framework to guide creative decision-making. That framework is described here, along with a discussion of best practices for the design of research figures and graphics by context.”

Lyn Gattis

Role of design education in fostering values of social responsibility in designers

Bothra, S. (2017). *Connexions: International Professional Communication Journal*, 5(1), 11–44. doi: 10.21310/cnx.5.1.17.bot

“Professional communication and industrial design have become a forceful, persuasive and omnipresent reality in shaping, serving and significantly changing the society and the environment at local as well as global levels. A professional designer is a significant contributor in creating the ‘world by design’, and shares the social responsibility of the consequences of the acts of design, with blurring of traditional and rigid boundaries of specialization. This research article examines ‘what is’ the role of the formal design education programs in fostering values of social responsibility in their students, the future professionals. The primary field study and research for this article was undertaken in India as a part of a doctoral research. Nevertheless, it brings forth

insights valuable for multiple locations and parallel contexts. The concluding part of the article takes a propositional and conceptual route to derive ‘what ought to be’—as models for future action.”

Lyn Gattis

Education

Immersion, reflection, failure: Teaching graduate students to teach writing online

Grover, S. D., Cook, K. C., Harris, H. S., & DePew, K. E. (2017). *Technical Communication Quarterly*, 26(3), 242–255. doi: 10.1080/10572252.2017.1339524

“A common challenge facing those who prepare graduate students to teach writing online is the need to help those students connect online writing instruction (OWI) theory with their classroom practice. The authors present how graduate students are prepared to teach writing online at three universities and then synthesize those approaches to highlight three principles that can guide effective OWI preparation for graduate students in any program: immersion, reflection, and failure.”

Rhonda Stanton

Online teaching and learning in technical communication: Continuing the conversation [special issue]

Hewitt, B. L., & Bourelle, T. (2017). *Technical Communication Quarterly*, 26(3), 217–202. doi: 10.1080/10572252.2017.1339531

“The purpose of this special issue of TCQ is to help TPC practitioners, teachers, and researchers to understand training and development principles specifically geared toward the delivery and conduct of online educational programs; issues of communication among administrators, online trainers, and online trainees; technologies and organizational dynamics as related to preparing for online education at various levels; and research and materials that educators have found successful when teaching students of technical communication. This issue offers new insights into the training and teaching

of online TPC classes, including strategies that have worked for instructors, failed strategies or approaches, challenges encountered, and lessons learned. This special issue also offers administrators scholarship that can guide them in their online training efforts, as well as developing, assessing, and maintaining a successful online program. Finally, it addresses some areas of growth for technical communicators in online educational venues. Some of the articles offer practical, adaptable guidance for instructors where training is not available, and all provide administrators and instructors with both theoretical and practical frameworks from which to structure individual online classes or entire online technical communication programs.”

Rhonda Stanton

Training online technical communication educators to teach with social media: Best practices and professional recommendations

Vie, S. (2017). *Technical Communication Quarterly*, 26(3), 344–359. doi: 10.1080/10572252.2017.1339487

“The author reports on social media research in technical and professional communication (TPC) training through a national survey of 30 professional and technical communication programs asking about their use of social media in technical communication. This research forms the basis of recommendations for training online TPC faculty to teach with social media. The author offers recommendations throughout for those who train online TPC faculty as well as for the teachers themselves.”

Rhonda Stanton

Training technical and professional communication educators for online internship courses

Bay, J. (2017). *Technical Communication Quarterly*, 26(3), 329–343. doi: 10.1080/10572252.2017.1339526

“This article explores how to train educators to teach online internship courses. The article introduces an online internship course focused on workplace

communication available to students across the university. Approaches to training educators to teach this course include requiring educators to immerse themselves in experiential learning situations, leveraging innovative uses of contemporary technologies for communication, and reflecting on online teaching processes.”

Rhonda Stanton

Virtual partnerships: Engaging students in e-service learning using computer-mediated communication

Harris, U. S. (2017). *Asia Pacific Media Educator*, 27(1), 103–117. doi: 10.1177/1326365X17701792

“Computer-mediated communication has important implications for future classroom learning which is no longer spatially bound or centred around text books. It has the ability to incorporate real-life learning whereby students can make important contributions towards solving global problems without having to leave the campus. This study looked at the impact of virtual communication processes and online tools on student and partner engagement in an on-campus undergraduate unit which enables Australian students to create communication campaigns for a non-government organization in India. The study found that the communication exchanges provided students with opportunities for intercultural dialogue, both in real and virtual spaces, and how to use Information and Communications Technology (ICT) and media within a social justice framework within a transnational working environment. Internet technologies have become part of the daily communication pattern of a new generation of students, who see it as their natural environment in which to learn, play and work. It is thus important to expand students’ use of the global digital network from superficial social interactions towards activities which enable them to become active and informed global citizens.”

Yvonne Wade Sanchez

Writing the trenches: What students of technical writing and literature can learn together

Baake, K., & Shelton, J. (2017). *Journal of Technical Writing and Communication*, 47(3), 280–299. doi: 10.1177/0047281616641922

“[The authors] argue for a course in which students analyze writing about a common topic . . . from multiple genres (e.g., poetry and technical manuals). [They] address the divide between instruction in pragmatic and literary writing and calls to bridge that gap. Students working in disparate areas of English learn the strengths and the limitations of their fields, and how text represents and promotes different interpretations of reality. Such written representations do not neatly line up along a utilitarian-literary binary but are more closely interwoven in the presence of a profound subject such as war.”

Anita Ford

Ethics

Is quantitative research ethical? Tools for ethically practicing, evaluating, and using quantitative research

Zyphur, M. J., & Pierides, D. C. (2017). *Journal of Business Ethics*, 143(1), 1–16. doi: 10.1007/s10551-017-3549-8

“This editorial offers new ways to ethically practice, evaluate, and use quantitative research (QR). [The authors’] central claim is that ready-made formulas for QR, including ‘best practices’ and common notions of ‘validity’ or ‘objectivity,’ are often divorced from the ethical and practical implications of doing, evaluating, and using QR for specific purposes. To focus on these implications, [the authors] critique common theoretical foundations for QR and then recommend approaches to QR that are ‘built for purpose,’ by which [they] mean designed to ethically address specific problems or situations on terms that are contextually relevant. For this, [the authors] propose a new tool for evaluating the quality of QR, which [they] call ‘relational validity.’ Studies, including their methods and results, are relationally valid when they ethically connect researchers’ purposes with the way that QR

is oriented and the ways that it is done—including the concepts and units of analysis invoked, as well as what its ‘methods’ imply more generally. This new way of doing QR can provide the liberty required to address serious worldly problems on terms that are both practical and ethically informed in relation to the problems themselves rather than the confines of existing QR logics and practices.”

Lyn Gattis

Social media policies: Implications for contemporary notions of corporate social responsibility

Stohl, C., Etter, M., Banghart, S., & Woo, D. (2017). *Journal of Business Ethics*, 142(3), 142–143. doi: 10.1007/s10551-015-2743-9

“Three global developments situate the context of this investigation: the increasing use of social media by organizations and their employees, the burgeoning presence of social media policies, and the heightened focus on corporate social responsibility (CSR). In this study the intersection of these trends is examined through a content analysis of 112 publicly available social media policies from the largest corporations in the world. The extent to which social media policies facilitate and/or constrain the communicative sensibilities and values associated with contemporary notions of CSR is considered. Overall, findings indicate that a large majority of policies, regardless of sector or national headquarters, increasingly inhibit communicative tenets of contemporary CSR (i.e., free speech, collective information sharing, and stakeholder engagement/dialogue) and thereby diminish employee negotiation and participation in the social responsibilities of corporations. Moreover, policies generally enact organizational communication practices that are contrary to international CSR guidelines (e.g., the UN Global Compact and other international agreements). Findings suggest that social media policies represent a relatively unrecognized development in the institutionalization of CSR communicative norms and practices that call into question the promising affordances of social media for the inclusion of various voices in the public negotiation of what constitutes corporate social responsibility.”

Lyn Gattis

Health communication

Improving the quality of healthcare data through information design

Noël, G., Joy, J., & Dyck, C. (2017). *Information Design Journal*, 23(1), 104–122. doi: 10.1075/idj.23.1.11noe

“Improving the quality of patient care, generally referred to as Quality Improvement (QI), is a constant mission of healthcare. Although QI initiatives take many forms, these typically involve collecting data to measure whether changes to procedures have been made as planned, and whether those changes have achieved the expected outcomes. In principle, such data are used to measure the success of a QI initiative and make further changes if needed. In practice, however, many QI data reports provide only limited insight into changes that could improve patient care. Redesigning standard approaches to QI data can help close the gap between current norms and the potential of QI data to improve patient care. This paper describes [the authors’] study of QI data needs among healthcare providers and managers at Vancouver Coastal Health, a regional health system in Canada. [They] present an overview of challenges faced by healthcare providers around QI data collection and visualization, and illustrate the advantages and disadvantages of different visualizations. At present, user-centred and evidence-based design is practically unknown in healthcare QI, and thus offers an important new contribution.”

Lyn Gattis

Information management

Can we all speak the same language . . . please?

Henselmann, M. A. (2016). *Best Practices*, 18(6), 146–148. [Center for Information-Development Management] [doi: none]

This article discusses the advantages of managing a company’s terminology to support brand image and make “products and documentation more consistent, easier to understand and translate, and easier to adapt to global markets.” The author recommends

developing a type of glossary or Terminology Database (Termbase) that “includes key words or small phrases that are specific to a product, market, or organization.” For each source term, the Termbase might include a short definition, common translations of the term, and examples of context for the term. The Termbase can then be used by authors, marketers, trainers, and translators “to ensure clarity and consistency across all . . . products and deliverables” and to make translation more productive and cost-effective.

Lyn Gattis

Instructions

Visualizers versus verbalizers

Darweesh, L., & Al Sulaim, R. (2017). *International Journal of Technology, Knowledge, and Society*, 13(2), 15–24. doi: 10.18848/1832-3669/CGP/v13i02/15-24

“Animation safety videos have begun to play a substantial role in communicating safety procedures on in-flight air travel. This paper demonstrates that the choice between the printed experience of traditional airline safety manuals vs. the visual animation experience of safety videos rely on consumers’ cognitive preferences. The research methodology is contingent with an open-ended and close-ended study covering a sample of forty well-traveled participants categorized under two age groups (19 to 39 and 40 to 70). Each group was benchmarked based on two modes of cognitive behaviors: Visualizers and Verbalizers. The participants were asked to delineate their cognitive preferences based on three categories, i.e., meaningful, engaging, and visual appeal of in-flight safety material. The preliminary findings established that 95 percent of the participants of nineteen to thirty-nine years’ age group strongly agreed that in-flight safety animation videos were more meaningful than traditional printed manuals, whereas 35 percent of the fifty to seventy age group disagreed that in-flight safety animation videos were more meaningful than print manuals. Surprisingly, based on the overall percentage of the categorical preferences, the empirical data found that both age groups were visualizers more than verbalizers were.

These findings provide primary data under the visual communication field, delineating the relationship between age and cognition preferences when it comes to animation safety videos.”

Lyn Gattis

Intercultural issues

Developing culturally and linguistically diverse online technical communication programs: Emerging frameworks at University of Texas at El Paso

Gonzales, L., & Baca, I. (2017). *Technical Communication Quarterly*, 26(3), 273–286. doi: 10.1080/10572252.2017.1339488

“This article addresses emerging calls for online education and cross-cultural technical communication training, specifically by outlining and reporting on the development and sustainability of two online programs: the graduate online technical and professional writing certificate and the emerging undergraduate bilingual professional writing certificate at the University of Texas at El Paso. Data presented suggest cultural and linguistic diversity should be embedded and streamlined across all aspects of online technical communication programs.”

Rhonda Stanton

Of friction points and infrastructures: Rethinking the dynamics of offering online education in technical communication in global contexts

St. Amant, K. (2017). *Technical Communication Quarterly*, 26(3), 223–241. doi: 10.1080/10572252.2017.1339522

“International interest in technical communication education is growing as more individuals gain online access worldwide. This factor means technical communication educators might find themselves developing online classes for students located in other nations. Doing so requires an understanding of aspects affecting international interactions in such educational contexts. This article examines central factors—or friction points—that technical communication

instructors must understand and address to offer effective online educational experiences to globally distributed students.”

Rhonda Stanton

Language

A corpus study of bank financial analyst reports: Semantic fields and metaphors

Cheng, W., & Ho, J. (2017). *International Journal of Business Communication*, 54(3), 258–282. doi: 10.1177/2329488415572790

“This corpus-based study compares financial analyst reports, collected during the Eurozone financial crisis in 2011, of the BNP Paribas and Bank of China (Hong Kong), which differ in corporate history and backgrounds. The study aims to describe, first, salient semantic and pragmatic meanings characteristic of salient topics in the financial analyst reports of the banks and, second, the patterns of use and function of metaphors specific to key semantic fields of each corpus to shed light on how the genre was exploited by respective banks to achieve organizational, professional, institutional, and sociocultural goals. Metaphors in each corpus were identified and meanings interpreted in the co-text of concordances, following the steps detailed in the metaphorical identification procedure (MIP). The website METALUDE (Metaphor at Lingnan University, Department of English; <http://www.ln.edu.hk/le/cwd/project01/web/introduction.html>) was used as a source of reference. Analysis of key semantic fields shows that the two sets of reports were composed of different topics. Concordance analysis of frequent lexical words in the key semantic fields further reveals semantic and pragmatic meanings. Major findings include BNP Paribas using more empirical research and survey findings in their financial analyst reports to promote their professional image and sense of responsibility to stakeholders, and frequent use of human traits metaphors, depicting different aspects of health, motion, mobility, and injury, revealing the way and extent to which financial analysts describe different business and financial market performance and activities.”

Katherine Wertz

Management

Faster, better, cheaper—Partnering with suppliers for success

Figueira, S. (2017). *Best Practices*, 19(2), 30–34. [Center for Information-Development Management] [doi: none]

For an organization that has decided to contract with “a supplier to provide writers at lower cost” in addition to its in-house writing staff, this article provides useful advice for making the most of the supplier partnership. The author recommends looking for a supplier that can “scale resources up or down” as needed, offers specialist skills that are a good match for the company, and has “a similar or compatible business culture and values.” Once the company has selected a supplier, a successful, long-term partnership depends on cost-effective quality for the company, a sustainable business model for the supplier, and job satisfaction for the writers. Sharing information and risk between the in-house and supplier teams also builds strong relationships. For an expanding company, an effective supplier partnership enables the organization to staff “new global sites using the supplier’s local hiring and cultural expertise, without having to hire a team of managers across the globe or increase management overhead.”

Lyn Gattis

Professional issues

Balancing institutional demands with effective practice: A lesson in curricular and professional development

Rodrigo, R., & Ramirez, C. D. (2017). *Technical Communication Quarterly*, 26(3), 314–328. doi: 10.1080/10572252.2017.1339529

“Online writing courses have developed in importance to meet student learning and institutional expectations; over time, a controversy about training online instructors and building sustainable programs has emerged. This article relates training demands within the University of Arizona’s Writing Program and development of an online professional and technical writing certificate. The article proposes training

instructors with master courses and building a sustained program through a participatory design to create a professional and integrated environment.”

Rhonda Stanton

Contingent faculty, online writing instruction, and professional development in technical and professional communication

Meloncon, L. (2017). *Technical Communication Quarterly*, 26(3), 256–272. doi: 10.1080/10572252.2017.1339489

“Technical and professional communication (TPC) programs rely on contingent faculty to achieve their curricular mission. However, contingent faculty lack professional development opportunities. In this article, the author reports survey results ($N = 91$) and three case studies that provide information on contingent faculty and their preparation for online teaching and then provides a three-step approach for TPC program administrators and faculty to follow so that programs can create sustainable professional development opportunities for contingent faculty to teach online.”

Rhonda Stanton

The Golden Age of technical communication

Kimball, M. (2017). *Journal of Technical Writing and Communication*, 47(3), 330–358. doi: 10.1177/0047281616641927

“This article uses a historical perspective to describe the development of the profession of technical communication through three ages: Brass, Beige, and Glass. [The author] compare[s] this development to the growth of the academic discipline and both to the explosion of noninstitutional technical communication—the growing body of tactical technical communication that happens outside of organizations and institutions. [The author then] describe[s] today as the Golden Age of technical communication, [and] conclude[s] that we should broaden the scope of technical communication and spread it as a set of skills valuable for everyone to learn.”

Anita Ford

Research

Digitally mapping the Buddhist holy land: Intercultural communication, religious history, and networked rhetoric

Maier, D. F., & Getto, G. (2016). Rhetoric, Professional Communication, and Globalization, 9(1), 78–99. [doi: none]

“Intercultural communication presents an array of well-known and much-discussed challenges to scholars and practitioners of Technical and Professional Communication and related disciplines. When addressing the religious culture, there is the added dimension of deeply-engrained worldviews. Likewise, the transmission of academic research in disciplines—such as religious studies, technical and professional communication, and digital humanities—depends upon communications across diverse cultural boundaries. In the wake of such challenges, we present an exploratory methodology behind a new research and instructional program that utilizes versatile digital tools and best practices from religious studies, digital humanities, and technical and professional communication.”

Lyn Gattis

Usability

Revising the online classroom: Usability testing for training online technical communication instructors

Bartolotta, J., Bourelle, T., & Newmark, J. (2017). Technical Communication Quarterly, 26(3), 287–299. doi: 10.1080/10572252.2017.1339495

“This article reports on an effort by the authors to use usability testing as a component of online teacher training for their multimajor technical communication course. The article further explains the ways in which program administrators at other institutions can create their own usability testing protocols for formative online teacher training in course design and in principles of user-centered design.”

Rhonda Stanton

Technical communication coaching: A strategy for instilling reader usability assurance in online course material development

Warner, R. Z., & Hewitt, B. L. (2017). Technical Communication Quarterly, 26(3), 300–313. doi: 10.1080/10572252.2017.1339493

“Online course material development requires much writing, often catching faculty by surprise because of either the sheer volume or the specialized role and function of writing in an online only and multimodal environment. Technical and professional communication (TPC) faculty are uniquely suited to coach faculty in producing readable writing for online courses. This article explores the professional development strategies and coaching skills necessary for TPC instructors and/or practitioners to serve in this role in online course development training.”

Rhonda Stanton